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Box 14
Item 14-26

Individual CCAA For:

Greater Sage-Grouse Umbrella CCAA for Wyoming Ranch Management

A Candidate Conservation Agreement with Assurances

for

Greater Sage-Grouse (*Centrocercus urophasianus*)

Developed Cooperatively by the:

Wyoming Bureau of Land Management
Natural Resources Conservation Service
Wyoming Game and Fish Department
Wyoming Department of Agriculture
Wyoming Association of Conservation Districts
U.S. Forest Service

and the

U.S. Fish and Wildlife Service

EXECUTIVE SUMMARY

Prior to settlement in the 19th century, greater sage-grouse (*Centrocercus urophasianus*; hereafter referred to as 'sage-grouse') inhabited 13 western States and three Canadian provinces, and their potential habitat covered over 1,200,483 square kilometers (km) (463,509 square miles (mi)). Sage-grouse have declined across their range due to a variety of causes and now occur in 11 States and two Canadian provinces. Many factors played a role in reducing sage-grouse from a once abundant, broadly distributed species, but the primary threat is loss of habitat due to increased surface disturbance and general fragmentation of the landscape. These concerns were identified in the 2005 Endangered Species Act (ESA) listing finding and remain so, but with more intensity and on a larger scale today. In the 2010 listing finding, additional concerns were identified as threats, including an increase in the use of sagebrush habitat for renewable energy such as wind power, and the spread of West Nile Virus (WNv).

In anticipation of a final listing decision by the U.S. Fish and Wildlife Service (FWS), the Wyoming Governor's Office (WGO; under Governor Freudenthal's administration) requested assistance from the FWS in developing a sage-grouse strategy for ranch management activities that could offer private landowners assurances their livestock operations could continue in the event the species was listed under the ESA. The WGO and FWS in conjunction with the Bureau of Land Management (BLM), the Natural Resources Conservation Service (NRCS), the U.S Forest Service (USFS), the Wyoming Department of Agriculture (WDA), Wyoming Game and Fish Department (WGFD), and the Wyoming Association of Conservation Districts have developed this umbrella Candidate Conservation Agreement with Assurances (CCAA).

A CCAA is a voluntary agreement whereby private landowners agree to manage their lands to remove or reduce threats to species at risk of being listed under the ESA. In return for managing their lands to the benefit of species at risk, these landowners receive assurances against additional regulatory requirements should that species ever be listed under the ESA. Under a CCAA, the FWS will issue enrolled landowners Enhancement of Survival (EOS) permits pursuant to section 10(a)(1)(A) of the ESA for a period of 20 years. Since the agreement is voluntary, the landowner can end it at any point, although in doing so they would give up any assurances, and the EOS permit would terminate. FWS will issue EOS permits to participating landowners contingent on development of a site-specific individual sage-grouse conservation plan consistent with this umbrella CCAA. This umbrella CCAA includes:

- A general description of responsibilities of all involved participating agencies and landowners, and the area covered under the umbrella CCAA;
- Background, status and general threats to sage-grouse, and conservation measures needed to remove or reduce those identified threats;
- Expected benefits of prescribed actions in relation to the five threat factors the FWS is required to evaluate when considering a species for listing; and
- Level of take likely to occur from activities on enrolled lands, assurances, monitoring, and annual reporting.

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DEFINITIONS

Animal Unit Month (AUM): The amount of forage required by a mature (1,000 pounds (436 kilograms)) cow, with or without calf, for one month. Animal unit equivalents can be determined for steers, horses, sheep, and other animals.

Avoid: Used in the context of this document, avoid is to "minimize impacts from an action to the maximum extent possible." It does not infer that a specific action will never occur.

Candidate Conservation Agreement (CCA): A voluntary conservation agreement between the FWS and one or more public or private parties. CCAs are primarily developed by Federal agencies to cover Federal lands and utilize conservation measures to benefit the designated wildlife species. No assurances are provided by the FWS that additional conservation measures will not be required or additional restrictions will not be imposed should the species become listed in the future.

Candidate Conservation Agreement with Assurances (CCAA): A voluntary conservation agreement between a non-Federal landowner and the FWS. The CCAA utilizes conservation measures to benefit the designated wildlife species and the landowner. Non-federal landowners will receive assurances from the FWS that additional conservation measures will not be required and additional restrictions will not be imposed should the species become listed in the future.

Candidate Species: Species for which the FWS has enough information to warrant proposing them for listing under the ESA, but is precluded from doing so by higher listing priorities. While listing actions of higher priority go forward, the FWS works with States, Tribes, private landowners, private partners, and other Federal agencies to carry out conservation actions for these species to prevent further decline and possibly eliminate the need for listing.

Complete Restoration: Restoration of the entire location, including any ancillary facilities or access roads. The site is reshaped as closely as possible to the original contour, covered with topsoil, and reseeded. Over a period of years the site will re-grow native vegetation, eventually making it difficult to find the location.

Conservation Measures (CMs): Specific management actions that directly benefit a species or its habitat.

Conservation Plan: A written record of overall management decisions and conservation practices landowners plan to use (Wyoming NRCS). A Grazing Management Plan (with more specific details on grazing practices that can enhance sage-grouse habitat) may be included as part of a Conservation Plan.

Cooperative Weed Management Areas (CWMA): A county or multi-county geographical area with partnerships between Federal, State, and local agencies; Tribes; individuals; and other interested groups to manage both regulated noxious weeds and invasive plants in that area.

Coordinated Resource Management (CRM): A voluntary, private landowner initiated planning process that establishes resource goals by consensus. It is formulated and designed as an approach to improve cooperation and coordination among resource owners, users, and managers in making decisions about how natural resources can best be used and managed.

Crucial Habitats: Places that (1) contain the resources (food, cover, shelter, and "important wildlife corridors") contributing to survival and reproduction of wildlife; (2) are necessary to prevent unacceptable declines; or (3) facilitate future recovery of wildlife populations (see Western Governors Association - Wildlife Corridors Initiative Science Committee Protocols for Information Delivery to Support the Initiative November 12, 2007).

Deferment: The delay of grazing to achieve a specific management objective. A strategy aimed at providing time for plant reproduction, establishment of new plants, restoration of plant vigor, a return to environmental conditions appropriate for grazing or the accumulation of forage for later use (from Society for Range Management).

Disruptive Activities: Those actions that alter behavior or cause the displacement of individuals such that reproductive success is negatively affected, or an individual's physiological ability to cope with environmental stress is compromised. This term does not apply to actions that physically disturb the land surface, vegetation, or features. Examples of disruptive activities may include noise, human foot or vehicle traffic, domestic livestock roundups, or other human presence regardless of the activity. When administered as a land use restriction (e.g., *No Disruptive Activities*), this term may prohibit or limit the physical presence of sound above ambient levels, light beyond background levels, and/or the nearness of people and their activities. The term is commonly used in conjunction with protecting wildlife during crucial life stages (e.g., breeding, nesting, birthing, etc.), although it could apply to any resource value (see BLM Information Bulletin No. WY-2007-029).

Disturb: To cause a change in the existing condition of an ecological system through a discrete event, either natural or human-induced.

Drought: A prolonged chronic shortage of water or period with below normal precipitation. During drought, the soil water content is reduced to the extent plants suffer from a lack of water. Drought is frequently associated with excessively high temperatures and winds during spring, summer, and fall (see NRCS Range and Pasture Handbook).

Endangered Species Act (ESA): A law passed in 1973 designed to protect and recover imperiled species and the ecosystems upon which they depend. Under the ESA, a species may be listed as either endangered or threatened. "Endangered" means a species is in danger of extinction throughout all or a significant portion of its range. "Threatened" means a species is likely to become endangered within the foreseeable future.

Enhancement of Survival (EOS) Permit: Used in the context of this document, the permit issued under a CCAA that authorizes incidental and intentional take associated with the land uses

and conservation measures covered by the CCAA. The permit becomes effective upon listing of the covered species. The permitting authority is ESA section 10(a)(1)(A).

Federal Action: A Federal action occurs when a Federal agency authorizes, funds, or carries out a program or project that may affect federally-listed species or their designated critical habitat. Section 7 of the ESA directs all Federal agencies to participate in the conservation and recovery of threatened and endangered species by consulting with FWS to insure any action that occurs on Federal land, requires a Federal permit or license, or uses Federal funds is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of its designated critical habitat. If a Federal agency determines adverse effects to a federally-listed species are likely to occur from a proposed action, it should request formal section 7 consultation with FWS. Examples of actions include, but are not limited to: (1) actions intended to conserve listed species or their habitats; (2) the promulgation of regulations; (3) the granting of licenses, contracts, leases, easements, rights-of-way, permits, or grants-in-aid; or (4) actions directly or indirectly causing modifications to the land, water, or air. For example, if a landowner receives Federal funds through the U.S. Farm Bill Conservation Reserve Program, NRCS would consult with FWS on associated actions to ensure that any listed species were not adversely affected (Note: This consultation would only cover activities associated with the Federal action and would not address activities outside the scope of the specific action).

Grazing Plan: A strategy outlining livestock management. Plans may include details on: livestock pasture usage (e.g., rotation of pastures) to improve range condition, promoting uniform forage utilization, management for heterogeneity of plant communities, and achieving broad distribution of animals across the property.

Grazing Management Plan: A program of action designed to secure the best practicable use of the forage resources by manipulation of the grazing animal (see NRCS National Range and Pasture Handbook). This Plan can be included as a component of a Conservation Plan and may contain specific details on grazing management that will enhance sage-grouse habitat.

Important Wildlife Corridors: Crucial habitats providing connectivity over different time scales (including seasonal or longer) among areas used by wildlife. Important wildlife corridors can exist within unfragmented landscapes or join naturally or artificially fragmented habitats and serve to maintain or increase essential genetic and demographic connection of populations (see Western Governors Association - Wildlife Corridors Initiative Science Committee Protocols for Information Delivery to Support the Initiative, November 12, 2007).

Incidental Take: The take of a species listed under the ESA that is incidental to, and not the purpose of, carrying out an otherwise lawful activity. An EOS permit issued under a CCAA can authorize incidental take from routine landowner activities covered by the CCAA or take associated with conservation activities for the covered species.

Interim Reclamation: Restoration of vegetation and scenic and habitat resources while there are ongoing activities (e.g., energy production) at the site. With interim reclamation, all areas

not needed for the activity are reclaimed (reshaped, covered with topsoil, and reseeded with native plants).

Listing: Used in the context of this document, listing provides a determination of whether a species is designated as threatened or endangered under the ESA and considers the designation of critical habitat for those species. Under the ESA, the FWS may determine a species is endangered or threatened based only on consideration of one or more of the following five factors (consideration of economics, or other factors not listed here, is not permissible under the ESA):

- The present or threatened destruction, modification, or curtailment of its habitat or range;
- Overutilization for commercial, recreational, scientific, or educational purposes;
- Disease or predation;
- The inadequacy of existing regulatory mechanisms; or
- Other natural or man-made factors affecting its continued existence.

Meadow: A tract of grassland where productivity of indigenous or introduced forage is modified due to characteristics of the landscape position or hydrology. Meadows may be characterized as: hay meadow, native meadow, mountain meadow, wet meadow, or other designations (from Society for Range Management).

Participating Party: An enrolled landowner, FWS, or participating agency that contribute to development of an individual CCAA.

Potential Habitat: Habitat containing the characteristics necessary to support sage-grouse.

Precluded: Used in the context of this document, precluded means deferred due to higher priority actions.

Rest: To leave an area of grazing land ungrazed or unharvested for a specific time, such as a year, a growing season or a specified period required within a particular management practice (from Society for Range Management).

Take: Take is defined in the ESA as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect any threatened or endangered species.

SAGE-GROUSE SPECIFIC DEFINITIONS

Annual status: Lek status is assessed annually based on the following definitions:

- **Active** – Any lek attended by male sage-grouse during the strutting season. Acceptable documentation of sage-grouse presence includes observation of birds using the site or signs of strutting activity.

- **Inactive** – Any lek where sufficient data suggests no strutting activity throughout a strutting season. Absence of strutting grouse during a single visit is insufficient documentation to establish that a lek is inactive. This designation requires documentation of either: (1) an absence of birds on the lek during at least 2 ground surveys separated by at least seven days. These surveys must be conducted under ideal conditions (April 1-May 7, no precipitation, light or no wind, half-hour before sunrise to one hour after sunrise) or (2) a ground check of the exact known lek site late in the strutting season (after April 15) that fails to find any sign (tracks, droppings, feathers) of strutting activity. Data collected by aerial surveys may not be used to designate inactive status.

- **Unknown** – Leks for which status as active or inactive has not been documented during the course of a strutting season. Except for those leks not scheduled for checks in a particular year, use of this status should be rare.

Density Disturbance Calculation Tool (DDCT): A process developed by the state of Wyoming to determine the maximum disturbance allowed in suitable sage-grouse habitat within the area affected by a proposed project.

Lek: A traditional courtship display area attended by male sage-grouse in or adjacent to sagebrush dominated habitat. A lek is designated based on observations of two or more male sage-grouse engaged in courtship displays. Before adding the suspected lek to the database, it must be confirmed by an additional observation made during the appropriate time of day, during the strutting season. Signs of strutting activity (tracks, droppings, feathers) can also be used to confirm a suspected lek. Sub-dominant males may display on itinerant (temporary) strutting areas during population peaks. Such areas usually fail to become established leks. Therefore, a site where less than five males are observed strutting is generally confirmed active for two years before adding it to the lek database.

Lek Complex: A lek or a group of leks within 2.5 km (1.5 mi) of each other between which male sage-grouse may interchange from one day to the next. Fidelity to leks has been well documented. Visits to multiple leks are most common among yearlings and less frequent for adult males, suggesting an age-related period of establishment (Connelly et al. 2004).

Lek Count: A census technique documenting the actual number of male sage-grouse observed attending a lek complex. The following criteria are designed to assure counts are done consistently and accurately, enabling valid comparisons among data sets. Additional technical criteria are available from the WGFD.

- Lek counts are conducted at 7-10 day intervals over a 3-4 week period after the peak of mating activity. Although mating typically peaks in early April in Wyoming, the number of males counted on a lek is usually greatest in late April or early May, when attendance by yearling males increases.
- Lek counts are only conducted from the ground. Aerial counts are not accurate and are not comparable to ground counts.

- Lek counts are conducted from half-hour before sunrise to one hour after sunrise.
- Attendance is counted at each lek a minimum of three times annually during the breeding season.
- Lek counts are only conducted when wind speeds are less than 15 km per hour (10 mi per hour) and no precipitation is falling.
- All leks within a complex are counted on the same morning.

Lek Count Route: A census of a group of leks relatively close to each other and representing a single breeding population or sub-population. Leks are counted on pre-determined routes to facilitate repeatability by other observers, increase the likelihood of recording satellite leks, and account for any shifts in breeding birds. Lek routes are established so that all leks along the route can be counted within 1.5 hours, following the criteria listed under Lek Count.

Lek Perimeter: The outer perimeter of a lek and any associated satellites. Perimeters are mapped by experienced observers using established protocols for all leks, with larger leks receiving higher priority. Perimeters may vary over time as population levels, habitat, or weather conditions change. However, changes to mapped perimeters occur infrequently and only if grouse consistently use the area for at least 2 years, demonstrating that the existing perimeter is inaccurate. A point within the lek perimeter is recorded or calculated as the identifying location for the lek. The point may be the geographic center of the perimeter polygon as calculated though a GIS exercise or a GPS point reflecting the center of breeding activity as typically witnessed on the lek.

Lek Survey: Lek surveys are designed principally to determine whether leks are active or inactive, requiring as few as one visit to a lek. Obtaining accurate counts of the numbers of males attending is not essential. Lek surveys involve substantially less effort and time than lek counts. They can be done from the ground or from a fixed-wing aircraft or helicopter. Lek surveys are conducted from the initiation of strutting in early March until early-mid May, depending on the site and spring weather. Ideally, all sage-grouse leks are counted annually. However, some breeding habitat is inaccessible during spring because of mud and snow, or the location of a lek is so remote it cannot be routinely counted. In other situations, topography or vegetation may prevent an accurate count from any vantage point. In addition, time and budget constraints often limit the number of leks that can be visited. Where lek counts are not feasible for any of these reasons, surveys are the only reliable means to monitor population trends.

Management status: Based on its annual status, a lek is assigned to one of the following categories for management purposes:

- **Occupied lek** – A lek that has been active during at least one strutting season within the prior 10 years. Occupied leks are protected through prescribed management actions during surface disturbing activities.
- **Unoccupied lek** – (Formerly known as "historical lek") There are two types of unoccupied leks, "destroyed" and "abandoned." Unoccupied leks are not protected during surface disturbing activities.

- **Destroyed lek** – A formerly active lek site and surrounding sagebrush habitat that is no longer suitable for sage-grouse breeding. A lek site that has been strip-mined, paved, converted to cropland, or undergone other long-term habitat type conversion is considered destroyed. Destroyed leks are not monitored unless the site has been reclaimed to suitable sage-grouse habitat.
- **Abandoned lek** – A lek in otherwise suitable habitat that is not active. To be designated abandoned, a lek must be inactive (see above criteria) in at least four non-consecutive strutting seasons spanning 10 consecutive years. The site of an abandoned lek should be surveyed at least once every 10 years to determine whether it has been re-occupied by sage-grouse.
- **Undetermined lek** – Any lek that has not been documented active in the last 10 years, but has insufficient survey information to designate the lek as unoccupied. Undetermined leks are protected through prescribed management actions during surface disturbing activities until sufficient documentation is obtained to confirm the lek is unoccupied. Use of this status should be rare.

Predator: An animal that preys upon sage-grouse. Predators may include coyotes, red foxes, bobcats, badgers, many species of raptors, and domestic cats or dogs.

Raptor: A "bird of prey" such as an eagle, hawk, or owl.

Satellite Lek: A relatively small lek (usually less than 15 males) that develops within about 500 meters (1,640 feet) of a larger lek during years of relatively high grouse numbers. Locations of satellite leks should be included within lek perimeter boundaries. Birds counted on satellite leks should be added to those counted on the primary lek for reporting purposes.

Suitable Habitat: Sagebrush area known or suspected by biologists of providing habitat for sage-grouse during important life periods (breeding, nesting, brood-rearing, and/or wintering) as determined by existing or historical records and/or by habitat assessments conducted by professional biologists.

Surface Disturbing Activity: An action altering the vegetation, surface/near surface soil resources, or surface geologic features beyond natural site conditions and on a scale affecting other land values. Examples of surface disturbing activities may include: operation of heavy equipment to construct well pads, roads, pits, and reservoirs; installation of pipelines and power lines; and several types of vegetation treatments (e.g., prescribed fire, etc.) (See BLM Information Bulletin No. WY-2007-029). Grazing of domestic livestock is not considered a surface-disturbing activity. A surface disturbing activity may be authorized or prohibited under this CCAA.

Winter Concentration Area: During winter, sage-grouse feed almost exclusively on sagebrush leaves and buds. Suitable winter habitat requires sagebrush above snow. Sage-grouse tend to select wintering sites where sagebrush is 25-36 centimeters (cm) (10-14 inches (in)) above the snow. Sagebrush canopy cover utilized by sage-grouse above the snow may range from 10-30 percent. Foraging areas tend to be on flat to generally southwest facing slopes or on ridges

where sagebrush height may be less than 25 cm (10 in), but the snow is routinely blown clear by wind. When these conditions are met, sage-grouse typically gain weight over winter. In most cases, winter is not considered limiting to sage-grouse. Under severe winter conditions, grouse will often be restricted to tall stands of sagebrush typically located on deeper soils in or near drainage basins. Winter habitat may be limiting under these conditions. On a landscape scale, winter habitats should allow sage-grouse access to sagebrush under all snow conditions.

Large numbers of sage-grouse have been documented to persistently use some specific areas characterized by the habitat features described above. These areas should be delineated as "winter concentration areas." Winter concentration areas do not include all winter habitats used by sage-grouse, nor are they limited to narrowly defined "severe winter relief" habitats. Delineation of these concentration areas is based on determination of the presence of winter habitat characteristics confirmed by repeated observations and signs of large numbers of sage-grouse. The definition of "large" is dependent on whether the overall population is large or small. In core population areas, frequent observations of groups of 50 or more sage-grouse meet the definition; while in marginal populations, group size may be 25-50. Consultation and coordination with the WGFD is required when delineating winter concentration areas.

LIST OF ACRONYMS

AUM	Animal Unit Month
BLM	Bureau of Land Management
CCA	Candidate Conservation Agreement
CCAA	Candidate Conservation Agreement with Assurances
CM	Conservation Measure
DDCT	Density Disturbance Calculation Tool
ESA	Endangered Species Act
EOS	Enhancement of Survival
FWS	U.S. Fish and Wildlife Service
NRCS	Natural Resources Conservation Service
PA	Participating Agency (BLM, NRCS, FWS, USFS, WACD, WDA, WGFD, WGO)
SUA	Surface Use Agreement
USFS	U. S. Forest Service
WACD	Wyoming Association of Conservation Districts
WAFWA	Western Association of Fish and Wildlife Agencies
WDA	Wyoming Department of Agriculture
WGFD	Wyoming Game and Fish Department
WGO	Wyoming Governor's Office
WNv	West Nile virus

1. INTRODUCTION

1.1 GREATER SAGE-GROUSE DECISION

The sage-grouse currently occurs across 11 states and two Canadian provinces. However, the species' distribution and numbers have shown a decreasing trend. Between 1999 and 2003, the FWS received eight petitions to list various populations of sage-grouse under the ESA. On January 12, 2005, the FWS published a finding that the sage-grouse did not warrant rangewide protection under the ESA (70 FR 2244). This "not warranted" finding was challenged in court, and in December 2007, a Federal Judge ordered the FWS to reconsider its decision. On March 23, 2010, the FWS published a rangewide "warranted but precluded" finding (75 FR 13909). The 2010 finding's determination indicates that the sage-grouse needs ESA protection, but higher priority species preclude proceeding with a listing rule at this time, thereby conferring candidate status on the sage-grouse. The primary threats to the sage-grouse, as defined in the 2010 finding, are habitat loss, fragmentation, and degradation.

In the 2010 "warranted" finding the FWS determined the practice of grazing was not, itself, an actual threat; rather, it was determined that improper livestock management, as determined by local ecological conditions, may have negative impacts on sage-grouse seasonal habitats (75 FR 13909 and references therein). Accordingly, some aspects of livestock grazing—associated with improper livestock management—have the potential to influence habitat loss, fragmentation, and degradation. Alternately, ranch and livestock management can have positive or negative impacts on sage-grouse, depending on the management techniques employed. Some benefits of livestock management may include:

- Maintenance of large tracts of unfragmented and undeveloped land;
- Increased rangeland plant diversity, including perennial grasses and forbs;
- Weed and invasive species management; and
- Productive springs and seeps (Beck and Mitchell 2000, Connelly et al. 2004, Crawford et al. 2004, Cagney et al. 2010).

However, some livestock and ranch management activities can have negative impacts to sage-grouse by:

- Compacting soils and increasing bare ground, thereby increasing the risk of establishing invasive weeds;
- Installation of water developments in certain locations, degrading nesting and brood-rearing habitat or increasing the risk of WNv;
- Sagebrush removal to increase forage for livestock, resulting in loss of sage-grouse habitat;
- Over-grazing, decreasing beneficial grasses and forbs in nesting and brood-rearing habitat; and
- Installation of fences in certain locations, causing direct mortality to sage-grouse and increasing fragmentation of habitats (Beck and Mitchell 2000, Connelly et al. 2004, Crawford et al. 2004, Cagney et al. 2010).

Landowners can address the compatibility of livestock and sage-grouse management concerns through various practices which reduce habitat loss, fragmentation, and degradation. However, in order to maximize the benefits of positive management, these techniques must be employed on a large scale. A comprehensive strategy is needed to accomplish this goal.

Livestock production is a primary use of Wyoming's lands, and listing the sage-grouse could have significant impact on this use. Therefore, the WGO has requested the FWS collaboratively develop a comprehensive sage-grouse management strategy to provide assurances to private ranch owners for activities on their private and State-leased lands.

1.2 COMPREHENSIVE CONSERVATION STRATEGY FOR GREATER SAGE-GROUSE

Comprehensive, cooperative approaches to conservation are an important component of addressing threats to sage-grouse. This umbrella CCAA outlines sage-grouse issues associated with ranch management and specific CMs to address these concerns, while providing landowners regulatory assurances. There are three goals this umbrella CCAA is designed to meet:

- Streamline the process for landowner enrollment;
- Promote CMs that reduce or remove threats to the sage-grouse through proactive ranch management, providing comprehensive conservation; and
- Provide landowners assurances that current ranch management practices covered by this CCAA will continue in the event the sage-grouse is listed under the ESA.

This statewide strategy allows participants to identify issues and opportunities unique to their operation that may be addressed by specific CMs. This umbrella CCAA provides a comprehensive menu of specific CMs from which a landowner and the PAs can select those measures most appropriate to his or her property for inclusion in an individual CCAA, with FWS concurrence. Appropriate CMs may vary depending on many site-specific factors such as available seasonal habitats, local climate, existing infrastructure, and water resources. Participants are not required to enroll their entire property. Using a streamlined application process, the landowner can develop and submit an individual CCAA to the FWS. The individual CCAA is linked to the umbrella CCAA, in conjunction with the regulatory assurances provided in a section 10(a)(1)(A) permit. By signing the individual CCAA and permit, the landowner agrees to implement CMs associated with current or future activities on the enrolled land. These CMs will reduce or remove threats to sage-grouse and restore, enhance, or preserve its habitat. The landowner also agrees to allow access to monitor the effectiveness of the implemented CMs. In return, the FWS agrees not to seek further commitments of resources or additional actions from the landowner on non-Federal lands during the term of the permit if the species is listed. Under the terms of this CCAA, the enrolled landowner also receives coverage for specific activities. This policy is consistent with the Candidate Conservation Agreement with Assurances Final Policy (64 FR 32726; June 17, 1999) and the regulations implementing the policy (69 FR 24084; May 3, 2004).

The Federal agencies which are joining this umbrella CCAA as participating agencies (PA) are agreeing to coordinate Federal actions under their administration on intermingled Federal land

and Federal programs on private land (e.g., Farm Bill programs such as WHIP, EQIP or others, as well as the NRCS Sage Grouse Initiative) with the individual CCAAs approved for private landowners. A landowner may graze livestock on land that is adjacent to or intermingled with Federal land administered by the BLM or the USFS where Federal permits are required. Also, a landowner may receive funding or other assistance from Federal agencies for parts of their grazing operations. If a Federal agency proposes to fund, authorize, permit, or otherwise carry out an action that may affect a listed species, the agency is required to coordinate with FWS to ensure the proposed action will not jeopardize the continued existence of any listed species or adversely modify any designated critical habitat. If the Federal agency determines, and FWS agrees, that the project is not likely to adversely affect any listed species or its critical habitat, the consultation is concluded. However, if adverse effects are likely to occur, the Federal agency must formally consult with FWS, and the FWS prepares a biological opinion. If a determination of jeopardy or adverse modification of critical habitat is made, the biological opinion must identify any reasonable and prudent alternatives that could allow the project to move forward without jeopardizing the species or adversely modifying designated critical habitat.

1.3 ADVANTAGES AND DISADVANTAGES OF IMPLEMENTING INDIVIDUAL CCAAs

With significant participation, the umbrella CCAA will improve the status of sage-grouse in Wyoming, reducing the likelihood the species may be listed under the ESA due to the types of actions covered herein. However, in the event this species is listed, a participating (enrolled) landowner's individual CCAA ensures that ongoing private land operations and any additional covered activities described in this umbrella CCAA may continue, provided the landowner is properly implementing the CCAA and no new information becomes available indicating the species may be jeopardized (see section 9). In addition, enrolled landowners receive incidental take coverage under section 10 of the ESA for activities described in section 8 (covered activities). This coverage, authorized in advance of possible listing, also serves to protect enrolled landowners from additional requirements for covered activities, should the sage-grouse be listed.

Even if individual CCAAs are implemented, the FWS cannot guarantee listing will never be necessary for all or part of the sage-grouse range. It is important to note that "preclude or remove any need to list" is based upon the removal of threats and the stabilization or improvement of the species' status. The decision to list under the ESA is a regulatory process independent of a CCAA or CCA. The FWS will evaluate actions and successes of this CCAA in accordance with the FWS Policy for Evaluation of Conservation Efforts during the listing determination process, as required under section 4(b)(2)(A) of the ESA. The FWS will consider the contribution to conservation made by these agreements in a "five-factor analysis" used to make a listing determination. The five factors include:

- The present or threatened destruction, modification, or curtailment of the species' habitat or range;
- Overutilization of the species for commercial, recreational, scientific, or educational purposes;
- Disease or predation;

- The inadequacy of existing regulatory mechanisms; or
- Other natural or man-made factors affecting the species' continued existence.

Some of the specific advantages of implementing an individual CCAA include:

- Regulatory assurances are provided for enrolled non-Federal landowners (as long as the CCAA is being properly implemented, FWS will impose no additional regulatory requirements on participating landowners, even if the sage-grouse is listed);
- Decreased time needed for project reviews of any related Federal programs and activities (ESA section 7 consultation has already occurred through the agreement process, which streamlines requirements with other Federal agencies such as the NRCS);
- Landowners participate with the FWS in selecting CMs fitting their individual ranch plans;
- CCAA/section 10 permits give incidental take coverage; and
- Landowners continue to play an important role in conserving sage-grouse.

Some of the specific disadvantages of implementing an individual CCAA include:

- Ranches may be subject to some public disclosure of ranch information through the required public review of the CCAA (e.g., name of ranch); and
- Development of a CCAA and any associated management plans and implementation of appropriate CMs does not guarantee sage-grouse will not be listed.

It is important to understand that CCAAs are voluntary agreements. There are no ESA regulations related to sage-grouse currently impacting a rancher's livestock operation. The sage-grouse is currently managed by the WGFD and will continue to be, unless the species becomes listed under the ESA. It is also important to note that participation in a CCAA does not give FWS permission to access private lands; similarly, even if sage-grouse were listed under the ESA, the FWS does not have the right or authority to gain access to private lands without first asking permission and gaining the consent of the private landowner.

Disadvantages of not implementing an individual CCAA include:

- Landowners do not receive assurances or a section 10(a)(1)(A) permit, consequently there would be no incidental take coverage for sage-grouse and no assurance that land use restrictions would not be imposed if the species is listed;
- Landowners have less opportunity to participate in a comprehensive strategy to conserve sage-grouse and shape the conservation actions on their property; and
- If there is a Federal action on the property and a species is listed, the FWS may recommend appropriate CMs to minimize adverse impacts, with less opportunity for early landowner input.

1.4 CCAA APPLICATION PROCESS

The appendices in this document provide specific information and necessary application forms for an individual CCAA and the section 10(a)(1)(A) permit. The following steps (described in more detail in Appendix A) summarize the process:

1. Contact the FWS Field Office in Cheyenne. The FWS will provide landowners with a pre-application screen (Appendix B) to complete. The pre-application screen includes the information necessary to initiate project review (e.g., landowner name; contact information; legal description of property location; identification of structures, fences, and pastures; and description of land use and management).

2. The FWS will contact the appropriate PAs to assist with review of the individual CCAA pre-application screen.

3. The FWS and other PAs will gather maps of property boundaries (based on the legal description provided by the landowner), soil maps, ecological site information, existing shrub cover, known leks, and topographical features. In consultation with the FWS and other PAs, landowners will determine if the property warrants further consideration for inclusion under this umbrella CCAA.

4. An EOS permit application must be completed and submitted by the landowner. The application form is available online at http://www.fws.gov/forms/3-200-54.pdf. The permit application must include the draft individual CCAA. Landowners will complete their individual CCAA in cooperation with PAs (e.g., identify current habitat conditions, threats for all lands and land use practices, CMs to be implemented and potential monitoring sites). (Appendix C). The application must include a $50 application fee.

1.5 BATCHING PERMIT APPLICATIONS

The FWS will "batch" individual CCAAs and permit applications from each landowner with other applications based on their time of submission. The FWS will announce a quarterly deadline, and will process all applications received during that timeframe together. If workload constraints prevent the FWS from processing all applications within the specified timeframe, they will evaluate applications based on a prioritization process, with highest value properties considered first (Table 1). Valuation of properties generally corresponds with highest quality and quantity of sage-grouse habitat, in conjunction with habitat characterized by least development/disturbance and highest level of control over future development.

Table 1. Prioritization of CCAA applications.

Considerations	Value
Property within sage-grouse core area	**50**
Property adjacent to sage-grouse core area	**25**
Active Grazing Plan, with sage-grouse needs considered	**10**
No energy development on property	**10**
Surface-owner also owns mineral rights to property	**50**
Property to be enrolled is ≥ 259 hectares (ha) (640 acres (ac))	**25**

1.6 DEVELOPING INDIVIDUAL CCAAs

The following steps describe how to develop individual CCAAs:

1. Landowner will complete Information Screen (Appendix B).

2. Landowners and PAs will select appropriate CMs from the list provided in the umbrella CCAA for inclusion in each individual CCAA application (Appendix C). Individual CCAA applications will be consistent with the threats and CMs identified in the umbrella CCAA and will describe specific CMs that will be (or are currently) implemented on enrolled lands. The selected CMs will conserve, restore, or enhance habitat for the sage-grouse, as well as reduce unfavorable impacts to the species arising from the management and use of these lands.

3. Before submitting the application for an individual CCAA to the FWS, the landowner should conduct a risk analysis and cost/benefit evaluation of potential costs and ranch commitments resulting from this CCAA process.

4. The landowner will finalize the individual CCAA and EOS permit application, and submit them to the FWS for review.

5. The FWS will review individual CCAA and EOS permit applications. Under the umbrella CCAA and relevant regulations and policy, if CCAA and permit issuance criteria are met, the Regional Office (Region 6) will approve the individual CCAAs and issue individual ESA section 10(a)(1)(A) EOS permits to enrolled landowners within the State of Wyoming. The EOS permit will become effective if the species is listed, which is when ESA take prohibitions for the species become effective.

6. Following FWS approval of an individual CCAA, if the landowner does not have an adequate conservation management plan already in place, the landowner will be expected to develop a site-specific conservation plan with assistance from PAs or other qualified service providers (e.g., consultant). The landowner will have 12 months from the signing of the individual CCAA to complete a sage-grouse conservation plan. If an adequate

conservation plan is not completed within 12 months, the FWS and PAs will work with the landowner to complete a plan. However, if an adequate plan has not been completed within 18 months of signature of the CCAA, FWS reserves the right to suspend or revoke the CCAA and EOS permit.

7. PAs will establish field monitoring sites and record initial values. The landowners (or their designee) will implement a compliance and biological monitoring program within one year of enrollment.

2. ENROLLED LANDS

The proposed umbrella CCAA encompasses approximately 7,011,569 ha (17,312,515 ac) of privately owned lands within the current range of the sage-grouse in Wyoming. Acreage estimates were derived from Wyoming Geographic Information Science Center land cover analyses, which are based on satellite images and digital elevation models (these estimates could change as new landscape information becomes available). Figure 1 presents all current sage-grouse habitat (public and private) in Wyoming. Connelly et al. (2004) estimated the total area in sagebrush in Wyoming was nearly 10 million ha (24 million ac); of which approximately 38 percent was privately-owned, 7 percent state-owned, 47 percent BLM-owned, 4 percent USFS-owned, and 4 percent BIA-owned, with other Federal agencies owning lesser amounts.

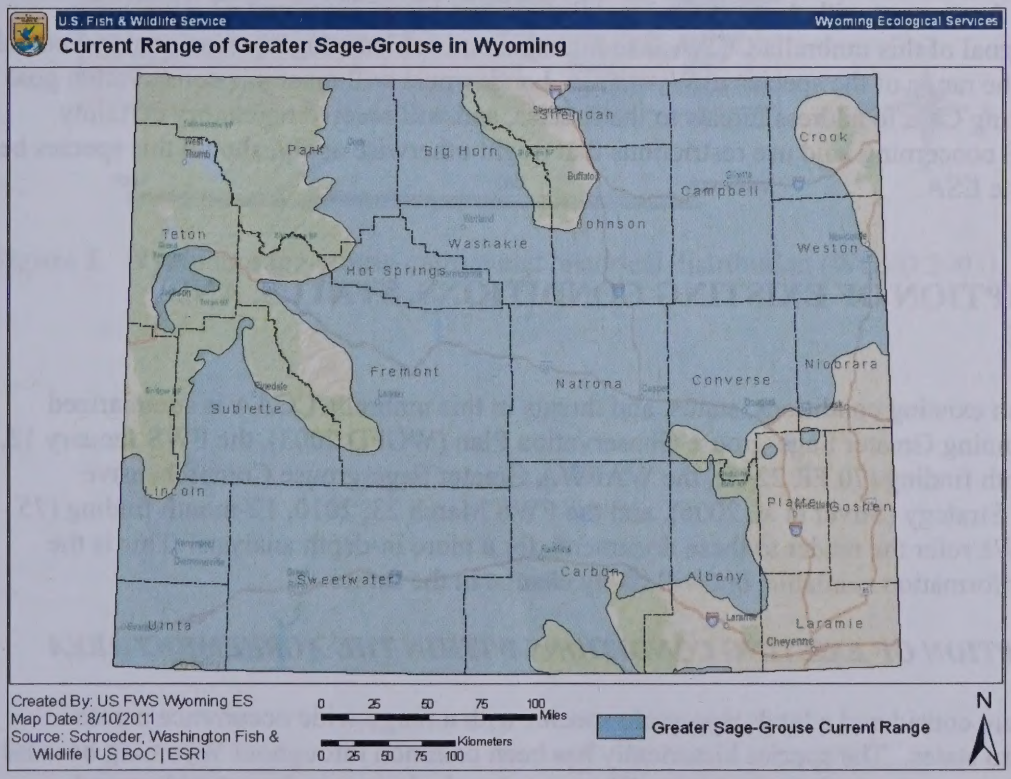

Figure 1. Current sage-grouse habitat within Wyoming (adapted from Schroeder et al. 2004)

3. AUTHORITY AND PURPOSE

Sections 2, 7, and 10 of the ESA of 1973, as amended (Act, 16 U.S.C. 1531 *et seq.*), allow the FWS to enter into this CCAA. Section 2 of the ESA states that encouraging interested PAs, through Federal financial assistance and a system of incentives, to develop and maintain conservation programs is a key to safeguarding the Nation's heritage in fish, wildlife, and plants. Section 7 of the ESA requires the FWS to review programs it administers and utilize such programs in furtherance of the purposes of the ESA. Section 10 describes permits issued under the ESA, exempting certain prohibitions under section 9.

The purposes of the ESA are "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved," and "to provide a program for the conservation of such endangered species and threatened species …" "Conserve" is defined in section 3(3) of the ESA and means "to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary." Lastly, section 10(a)(1)(A) of the ESA authorizes the issuance of permits to "enhance the survival" of a listed species. Enhancement means the permitted activities benefit species in the wild.

By entering into a CCAA, the FWS is utilizing its Candidate Conservation Programs to further conservation of the Nation's fish and wildlife. Consistent with the FWS's "Candidate Conservation Agreement with Assurances Final Policy" (64 FR 32726; June 17, 1999), the conservation goal of this umbrella CCAA is to maintain and enhance sage-grouse on non-Federal lands within the range of the species in Wyoming. Landowners will meet this conservation goal by implementing CMs to address threats to the species, and will receive regulatory certainty from the FWS concerning land use restrictions that might otherwise apply, should this species be listed under the ESA.

4. DESCRIPTION OF EXISTING CONDITIONS, STATUS, AND THREATS

Information on existing conditions, status, and threats in this umbrella CCAA is summarized from the Wyoming Greater Sage-grouse Conservation Plan (WGFD 2003), the FWS January 12, 2005, 12-month finding (70 FR 2243), the WAFWA Greater Sage-grouse Comprehensive Conservation Strategy (Stiver et al. 2006), and the FWS March 23, 2010, 12-month finding (75 FR 13910). We refer the reader to these documents for a more in-depth analysis. This is the most recent information available, but will likely change in the future.

4.1 DESCRIPTION OF EXISTING CONDITIONS WITHIN THE AGREEMENT AREA

Sage-grouse are considered a landscape-scale species with a range-wide occurrence across several western states. The species historically has been common throughout Wyoming because their habitat has remained relatively intact. Wyoming has the largest and most widespread population of sage-grouse of any State or Province. Nevertheless, sage-grouse populations have

declined in Wyoming and elsewhere across the West over the last half-century, and the current distribution within Wyoming has contracted substantially in some areas compared to that seen historically (Figure 2). However, over the last 15 years, the average number of males per lek has increased in Wyoming, indicating an increasing statewide population. In summary, there have been long-term declines in Wyoming, but with recent increases in sage-grouse populations (Figure 3). While these trends are valid at the statewide scale, local sub-populations may be more heavily influenced by human impacts (e.g., sub-divisions, intensive energy development, and large-scale conversion of sagebrush) and have experienced declining populations in some cases.

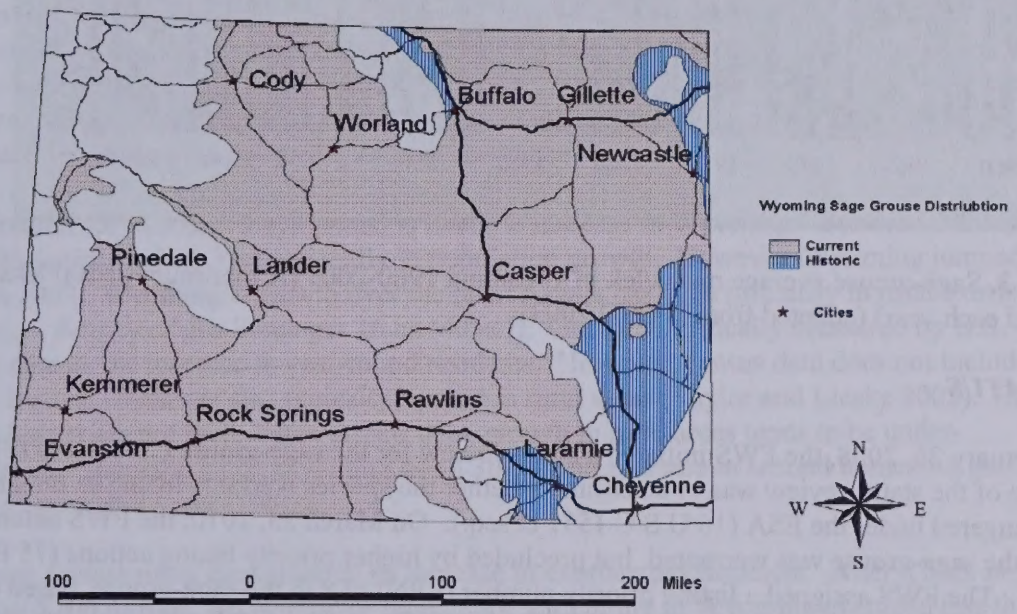

Figure 2. Wyoming sage-grouse current and historical distribution (WGFD 2003).

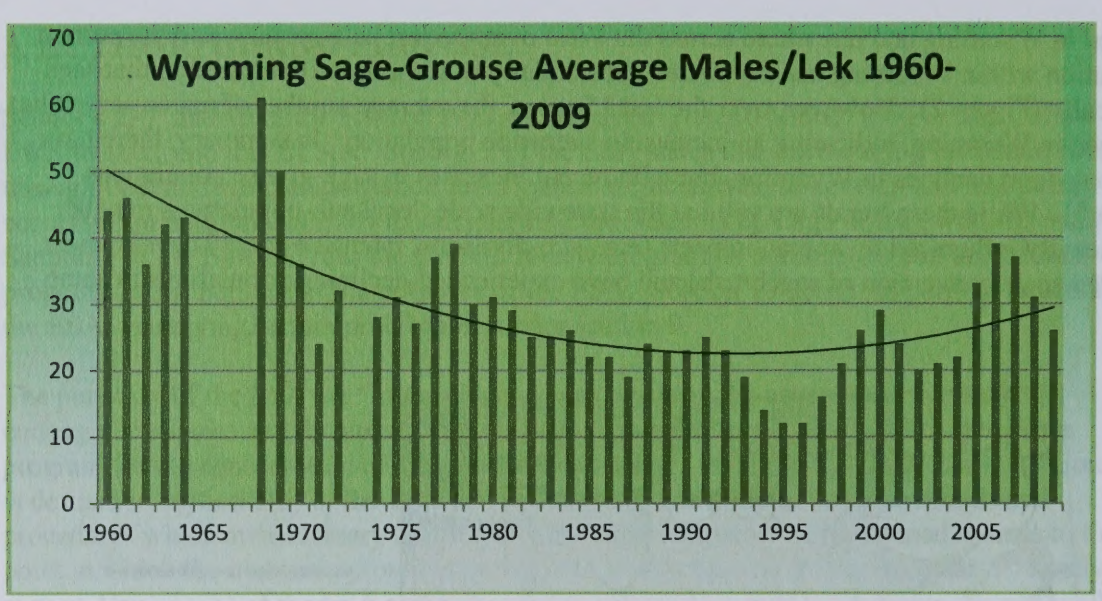

Figure 3. Sage-grouse average males/lek in Wyoming 1960-2009 (A minimum of 100 leks checked each year) (adapted from WGFD 2003).

4.2 STATUS

On February 26, 2008, the FWS initiated a status review for the sage-grouse (73 FR 10218). The purpose of the status review was to determine whether the species warrants listing as threatened or endangered under the ESA (16 U.S.C 1531 et seq.). On March 23, 2010, the FWS determined listing the sage-grouse was warranted, but precluded by higher priority listing actions (75 FR 13910). The FWS assigned a listing priority number (LPN) of 8 to the sage-grouse, based on its finding that the magnitude of the threats is moderate, the immediacy of the threats is imminent, and the sage-grouse has more than one species in its genus.

When making a decision to list a species under the ESA, the FWS is required to determine whether the species is threatened by any of the five listing factors. Stressors specific to ranch management in Wyoming are described for the five factors.

4.2.1 Present or Threatened Destruction, Modification, or Curtailment of Habitat or Range

Habitat fragmentation is the leading cause of sage-grouse population decline rangewide, including Wyoming. Historically, portions of the native sagebrush shrub community were lost to seeded perennial grasses, irrigated agriculture, urbanization, and infrastructure associated with human development (e.g., subdivisions, oil and gas field developments). While conversion to agriculture and perennial grassland pastures may have reached its upper limits, human encroachment continues to fragment previously undisturbed habitat, and more development is expected. The following stressors may occur during ranch management and can adversely impact sage-grouse habitat.

Exurban Development

Exurban development is a significant issue, causing a reduction in the size of ranch operations into smaller ownerships with accompanying small pastures. Subdivision and associated human activities may reduce cover, alter composition of native species, and increase the likelihood livestock will trample nests or physically disrupt the life cycle of sage-grouse. Roads, power lines, increased traffic, and additional fences associated with rural residential development may further reduce or fragment habitat and pose physical threats to sage-grouse. There are also ancillary effects. For example, residential development likely results in an increase in the number of domestic dogs and cats and a corresponding increase in feral animals. These dogs and cats can prey on sage-grouse adults, chicks, and eggs, or cause nest abandonment. Domestic livestock numbers can also increase, particularly horses. While a house and outbuildings may occupy only a small portion of a 16 ha (40 ac) ownership, concentrating one or more horses on the surrounding native range, with the resultant alteration and removal of vegetation, and associated fences, can have significant impacts on sage-grouse.

The potential for exurban development is likely to increase in Wyoming. Between 2000 and 2005, Wyoming ranked 31st nationally in population growth. However, Wyoming jumped to 9th place in 2007. Wyoming's growth over the last 15 years has been primarily in rural exurban areas (e.g., density of one home per 16 ha (40 ac)). Growth is typically measured by U.S. Census data as the increase in year-round residents. However, census data does not include second homes, which are also typically located in rural areas (Taylor and Lieske 2002). Because second homes are not included in census data, growth in rural areas tends to be under-represented; especially since Wyoming had a 30 percent increase in second homes for the 2000 census (Taylor and Lieske 2002).

Economic factors often contribute to an increase in exurban development. After a high in 1993 of almost $200 million, net proprietor income for agriculture in Wyoming averaged less than $40 million per year through 2006. Drought resulted in negative income in 2002 (-$16.5 million) and 2006 (-$63.2 million) (Hulme et al. 2009). Despite the current lower levels of profitability for agriculture in Wyoming, the average price of a ranch in Wyoming increased by more than three times on a production-unit basis from 1993-1995 and 2002-2004. Similarly, the average price for irrigated meadowland in Wyoming has nearly doubled (Taylor 2003).

Livestock Operations and Management Impacts

Livestock grazing is the dominant land use within the CCAA area. Large ranching operations have maintained intact habitat with minimal roads, power lines, and human intrusions compared to more intensive land uses such as oil and gas development. However, at times there may be adverse impacts from grazing; particularly in areas where intensive grazing and purposeful removal of shrub communities have altered native vegetation and the ecological succession stage in sagebrush-bunchgrass communities. The challenge of managing grazing impacts lies with the ability of ranchers to readily identify and then rectify unfavorable conditions. Sagebrush-bunchgrass communities evolved in an arid climate, and changes in vegetative composition are subtle, often not recognizable until the adverse trend is well-established (Cagney et al. 2010).

From a rancher's perspective, options to change vegetative conditions concern the management of herds – specifically where and when they graze, for how long, and in what numbers (Cagney et al. 2010). These decisions, coupled with fences, herding techniques, salt and mineral placement, seasons of use, water development, and type of livestock, constitute the vast majority of management options.

Fire

The effect of fire upon sage-grouse can sometimes be transitory or even beneficial, depending upon the size of the burn, the condition of the vegetative community affected, and the presence of additional unaffected sagebrush habitat nearby. In some situations, implementation of carefully developed fire management plans may help maintain a mosaic of vegetative conditions across a landscape that supports various seasonal and life cycle needs of the sage-grouse. However, in other situations, annual precipitation less than 30 cm (12 in), poor soils, or difficult terrain results in high economic cost and variable success of fire management. Fire can increase the spread of noxious weeds and annual grasses by removing the native vegetation's seed source, especially in areas with monocultures of annual grasses (e.g., cheatgrass) or widespread weed problems (e.g., thistle, black henbane). Much of the landscape has reached a point where remaining sagebrush stands should be protected, and fire can no longer be viewed as a constructive force across the landscape.

A variety of techniques to reestablish sagebrush habitat post-fire have been attempted, with mixed success (Cadwell et al. 1996, Quinney et al. 1996, Livingston 1998). Sagebrush restoration following a fire can be complicated by the presence of invasive exotic annual plant species, restoration costs, availability of suitable seeds, and the difficulty of establishing sagebrush seedlings. The efficacy of these efforts and the utility of these sites for sage-grouse may not be realized for several decades. Range monitoring, especially in burned areas, is expected to reveal more information on sage-grouse use (or avoidance) of these areas, which may lead to better management prescriptions in the future.

Annual Grass Invasions

The establishment of plant communities that do not provide suitable habitat (e.g., invasive plants) is a major threat to sage-grouse. For example, the rapid and aggressive spread of cheatgrass has been facilitated by a number of ecological traits allowing it to out-compete native species for water and nutrients on sites where it is adapted. Displacement of native perennials is of most concern in drier habitats with less than 30 cm (12 in) of annual precipitation, particularly flat areas with high clay content in the soil. South and west exposures are more susceptible than northern exposures to invasion by non-native plants. As precipitation increases, the ability of cheatgrass to compete with native plants for moisture and nutrients decreases. The higher potential productivity and density of native understory grasses may also increase recovery rates of native fire-tolerant species.

Concentrated Encroachment of Woodland Species

Encroachment of woodland species (e.g., junipers, conifers, Russian olive, salt cedar) into sage-grouse habitat can lead to a reduction of sage-grouse use, or complete abandonment of these habitats.

Concentrated Wildlife

Concentrated or overabundant big game and wild horse populations can harm plant communities important to sage-grouse, reducing both habitat quality and quantity.

4.2.2 Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

This factor has not been demonstrated to be a significant threat to sage-grouse in Wyoming.

4.2.3 Disease or Predation

Sage-grouse are susceptible to a variety of diseases, and an outbreak could have a severe effect on the species. This possibility is heightened by the recent spread of WNv throughout Wyoming, particularly in the northeastern corner of the State. Detection of the virus in birds and documentation of the disease in humans and horses indicate the potential for large-scale outbreaks among susceptible species such as sage-grouse.

Predation has been suggested as a possible cause of long-term population declines. Sage-grouse are a prey species. Predators can have a severe impact on prey populations occurring at critically low numbers or in patches of habitat so small the opportunity for escape is limited. While predators may have a significant impact on sage-grouse a localized scale, adult sage-grouse typically experience relatively high annual survival rates, suggesting predation has little impact on rangewide breeding populations (Connelly et al. 2004). While increased rates of predation on a local scale often are associated with fragmentation and the presence of infrastructure, more research clearly is needed to understand the extent to which predation affects sage-grouse.

4.2.4 Inadequacy of Existing Regulatory Mechanisms

State of Wyoming

The State of Wyoming has developed a core area strategy for sage-grouse by delineating important habitats. The State designated these core areas to protect the most important sage-grouse habitats, including their lek sites. The WGO issued Executive Order 2011-5, which outlines development restrictions within those core areas. Specifically, the Order requires "state agencies should, to the greatest extent possible, focus on the maintenance and enhancement of those Greater Sage-Grouse habitats and populations within the Core Population Areas identified by the Sage Grouse Implementation Team." The order addresses new development within "Core Population Areas," which "should be authorized or conducted only when it can be demonstrated by the state agency that the activity will not cause declines in Greater Sage-Grouse populations."

Other recommendations include working with the FWS to develop CCAAs and CCAs to address threats, proactive activities to combat wildland fire, and incentives to enhance reclamation sites within the core areas.

The State of Wyoming also developed a statute pertaining to surface use of lands where mineral rights are owned by an entity other than the surface owner. The statute (Wyo. Stat. Ann. §30-5-402 (2012)) requires that, prior to entry upon the land for oil and gas operations, the operator must provide the required notice, attempt good faith negotiations to reach a Surface Use Agreement, and: (i) secure the written consent or waiver of the surface owner for entry onto the land for oil and gas operations; (ii) obtain an executed surface use agreement providing for compensation to the surface owner for damages to the land and improvements as provided in W.S. 30-5-405(a); (iii) secure a waiver as provided in W.S. 30-5-408; or (iv) in lieu of complying with paragraph (i) or (ii), execute a good and sufficient surety bond or other guaranty to the commission for the use and benefit of the surface owner to secure payment of damages. The amount of the initial bond or other guaranty shall be determined pursuant to W.S. 30-5-404(b).

Federal Agencies

The BLM manages approximately 47 percent of sagebrush habitat in Wyoming. The BLM's primary management tool is the Resource Management Plan (RMP), which guides decisions for livestock and travel management, wildlife, and other resources. Most BLM RMPs have been recently revised or are currently under revision. In 2011, the BLM Washington Office issued two Instructional Memoranda regarding sage-grouse conservation, providing management direction and protection measures. In 2012, the BLM Wyoming State Office updated and reissued their Instructional Memorandum on sage-grouse habitat management policy. The BLM is working with the FWS to draft a CCA on lands BLM manages in Wyoming. The BLM's CCA and this umbrella CCAA are designed to "dovetail," providing additional benefits to the species and management continuity between private and Federal lands.

The USFS manages approximately four percent of sagebrush habitat in Wyoming. The USFS has land management guidance similar to the BLM known as the Land and Resource Management Plan (LRMP). The USFS also is working with the FWS to draft a CCA on lands they manage in Wyoming. As with the BLM's CCA, the USFS's agreement is designed to "dovetail" with this umbrella CCAA, providing additional benefits to the species and management continuity between private and Federal lands.

4.2.5 Other Natural or Man-made Factors Affecting the Species' Continued Existence

Energy developments are confirmed threats to sage-grouse within Wyoming, and new exploration leases for natural gas are being permitted nearly statewide (see FWS March 2010 finding). However, within designated sage-grouse core areas, these activities are significantly restricted by both the State and BLM. In addition to the core area restrictions, private landowners can guide surface use of their properties through SUAs, when they do not own the mineral rights.

Major transmission lines currently cross the State, with several new proposals in the planning stages. However, the State has regulations in place considering the needs of the sage-grouse and requiring State permitting agencies to work with the WGFD to minimize impacts to sage-grouse when siting these projects.

The use of pesticides to control grasshoppers, Mormon crickets, and noxious weeds does not pose a significant rangewide threat to sage-grouse. However, pesticides have caused mortality to sage-grouse in the past. Pesticides could have a local impact through direct contact with individual grouse, consumption by sage-grouse of insects exposed to pesticides, or by reduction of all insect populations during times when insects are a crucial part of the birds' diets (see FWS March 2010 finding).

4.3 SPECIFIC FACTORS AFFECTING THE SPECIES

The long-term persistence of sage-grouse will depend on maintenance of intact landscapes. Sage-grouse are landscape-scale species and the destruction and fragmentation of their habitat has contributed to significant population declines over the past century. If current trends persist, many local populations may disappear in the next several decades, with remaining fragmented populations vulnerable to extinction. Based on a review of the scientific literature (see FWS March 2010 finding), threats to sage-grouse and their habitats in Wyoming may include, but are not limited, to the following specific factors.

- Habitat fragmentation is the most significant threat to the long-term persistence of sage-grouse.
- Infrastructure (e.g., powerlines, roads) can fragment sage-grouse habitat, decreasing sage-grouse use and habitat quality.
- Previously disturbed, degraded, or fragmented sage-grouse habitat that remains unrestored or unreclaimed results in a loss of sage-grouse habitat quality and quantity.
- Establishment of plant communities that do not provide suitable habitat (e.g., monocultures of non-natives) reduces sage-grouse habitat quality and quantity.
- Introduction of non-native invasive plant species can eliminate native plant communities important to sage-grouse, reducing habitat quality and quantity.
- Wildland fire can remove long-lived species such as sagebrush, reducing sage-grouse habitat quality and quantity.
- Surface water developments such as ponds may in some instances increase mosquito habitat, resulting in increased sage-grouse mortality from disease (e.g., WNv).
- Sagebrush management (e.g., prescribed fire, chemical, or mechanical) can result in a reduction of sage-grouse habitat quality and quantity.
- Some grazing management practices may alter shrub cover and grass and forb composition, reducing sage-grouse habitat quality and quantity.
- Concentration of livestock may impact vegetation and soil structure, reducing sage-grouse habitat quality and quantity.
- Encroachment of woodland species into sage-grouse habitat can lead to a reduction of use or abandonment of habitat.

- Livestock, humans, and vehicle activity can physically disturb birds and cause them to leave leks or abandon nests (i.e., direct impact to nests and brooding hens), resulting in decreased reproductive success.
- While they can be an important wildlife and livestock management tool, water diversions and spring developments can dry up wet meadow and riparian areas, reducing sage-grouse habitat quality.
- Some farm and ranch facilities can increase opportunities for predation of sage-grouse and sage-grouse nests by providing additional raptor perches or human attractants such as dead piles or garbage dumps that attract mammalian and avian predators.
- Application of insecticides can remove insects important to sage-grouse, reducing sage-grouse habitat quality.
- Prolonged drought can harm plants important to sage-grouse, reducing sage-grouse habitat quality and quantity.
- Livestock watering tanks and troughs can cause sage-grouse mortality by entrapment and drowning.
- Concentrated or overabundant wildlife populations can harm plant communities important to sage-grouse, reducing habitat quality and quantity.
- Sage-grouse can collide with poorly designed or located fences, resulting in serious injury or death.

These potential threats and their corresponding CMs are described in more detail in the following section. While many of the threats identified are not the result of ranch management, they nevertheless provide opportunities to achieve conservation for sage-grouse on ranches in which these threats are operating.

5. CONSERVATION MEASURES

5.1 EXPECTATIONS OF ALL ENROLLED LANDOWNERS

According to the FWS 2010 listing finding, the primary threat to sage-grouse is habitat fragmentation. Therefore, in order for this CCAA to address the conservation needs of the sage-grouse, the following CM must be implemented by all enrolled landowners on the enrolled portion of their property:

> *Maintain contiguous habitat by avoiding fragmentation (e.g., do not subdivide property, consider conservation easements).*

In addition, all enrolled landowners will agree to undertake the following measures:

(1) Avoid impacts to populations and individual sage-grouse present on their enrolled properties to the maximum extent practicable.
(2) Continue current practices identified as conserving sage-grouse.
(3) Implement all agreed upon CMs in site-specific plans within the agreed upon timeframe.
(4) Implement a conservation management plan within 12 months following approval of

their individual CCAA.

(5) Provide the FWS or their agreed upon representatives access to the enrolled property at mutually agreeable times to identify or monitor sage-grouse and their habitat, implement CMs, and monitor effectiveness and compliance with individual CCAAs.
(6) When requested, allow PAs to share with each other habitat and other planning or monitoring information related to the enrolled properties.
(7) Cooperate and assist with monitoring activities and other reporting requirements identified in site-specific plans.

5.2 SPECIFIC CONSERVATION MEASURES

The process of selecting specific CMs for individual properties will be based on the threats identified for the enrolled property (see Appendix C). Each identified threat within control of the landowner will be addressed and will have one or more corresponding CM(s). The FWS and other PAs recognize each property is unique and CMs will be site-dependent. The FWS and other PAs will work with each landowner to identify specific threats for the property and select CM(s) to remove or reduce each threat. There is no minimum number of CMs required to qualify for a CCAA, as long as the specific threats are addressed. In addition, the FWS recognizes not every potential CM listed for a particular threat is appropriate for a given property. Selecting site-specific CMs will be based on their likely effectiveness and ability to be implemented. Consequently, the CMs selected for the enrolled property should be the most beneficial for that particular property.

While these CMs should apply across the landscape, there may be circumstances where site-specific modifications or conditions warrant changes to the standard prescriptions. Changes to CMs will occur in consultation with participating landowners and agency specialists (e.g., biologists, range management specialists), and with FWS agreement. The FWS will note those changes on the individual CCAAs for enrolled properties, including rationale or justification for any modifications.

The following table describes potential threats and corresponding CMs, conservation benefits, and compliance monitoring, for this umbrella CCAA.

Table 2. Conservation Measures

THREAT	CONSERVATION MEASURES	CONSERVATION BENEFITS	COMPLIANCE MONITORING
Fragmentation of the Landscape			
Fragmentation of the landscape causes birds to leave leks or abandon nests or important habitats (i.e., direct impact to nests and brooding hens), resulting in decreased reproductive success.	Maintain contiguous habitat by avoiding fragmentation (e.g., do not subdivide property; enter into conservation easements; consolidate new roads, buildings, power lines).	Reduces disruptions to sage-grouse activities, maintains habitat quality & quantity, maintains population connectivity and recruitment, and reduces vulnerability to predation	Describe measures taken to avoid fragmentation of the habitat (e.g., consolidating new and existing roads, buildings, power lines). If conservation easements are implemented, describe any signed and acres enrolled.
Infrastructure			
Infrastructure (e.g., power lines, roads, fences) can fragment sage-grouse habitat, decreasing sage-grouse use and habitat quality.	Convert electrically (AC) powered pumps or wind mills to solar.	Removes or reduces amount of habitat fragmentation and mortality due to infrastructure across the landscape	Describe specific actions taken to avoid new infrastructure or consolidate or otherwise minimize existing infrastructure to comply with these conservation measures.
	Avoid building new infrastructure (e.g., roads, buildings, fences) within 0.6-mile of occupied leks and within sage-grouse habitats. In core areas, use the DDCT method as outlined in the Governor's Executive Order 2011-5.		
	Consolidate existing roads, buildings, etc. within 0.6 mile of occupied leks or within sage-grouse habitats.		
	If feasible, bury new and existing power lines.		
Restoring Disturbed Habitats			
Disturbed, degraded, or fragmented sage-grouse habitat not restored or reclaimed results in permanent loss of sage-grouse habitat quality and quantity.	Implement restoration projects in areas with known issues/concerns.	Enhances degraded habitats and reduces potential for spread of noxious weeds Increases success and reduces time necessary for successful establishment of new plantings	Describe any restoration projects and status of same in annual monitoring reports.
	Rest newly seeded/planted rangeland from livestock use. Consult agency specialist for the amount of time to rest.		Describe management plan, actions taken to implement the plan, and monitoring to measure success.
	Work with agencies to include provisions for successful interim reclamation and complete restoration of habitats that have experienced development and/or surface disturbing activities.		Describe restoration or reclamation plan, actions taken to implement the plan, and monitoring to measure success.

Table 2 continued. Conservation Measures

THREAT	CONSERVATION MEASURES	CONSERVATION BENEFITS	COMPLIANCE MONITORING
Establishment of Non-native Monocultures			
Establishment of plant communities that do not provide suitable habitat (e.g., monocultures of non-natives such as crested wheatgrass) reduces sage-grouse habitat quality and quantity.	Do not introduce non-natives (e.g., crested wheatgrass) tending toward monocultures on enrolled lands, except non-persistent annual grasses used for soil protection until perennial native vegetation can be established (e.g., sterile Triticale) or non-invasive beneficial forbs.	Reduces impacts to sage-grouse habitat quality and quantity	Describe specific action taken to avoid introduction of invasive non-native vegetation. Describe monitoring to detect potential presence of non-natives.
	Work to remove the invasive, non-native vegetative component; inter-seed range with native/beneficial seed mixes.		Describe which non-natives detrimental to sage-grouse habitat quality were present. Describe actions to remove any detrimental non-native vegetation.
Management of Invasives and Non-native Plant Species			
Establishment of invasive plant species (including post wildland fire) reduces sage-grouse habitat quality and quantity.	Participate in weed-control groups/processes such as Cooperative Weed Management Areas (CWMAs) or a Coordinated Resource Management (CRM).	Reduces impacts to sage-grouse habitat quality and quantity	Describe your activity in these programs.
	Work with management agencies (e.g., BLM, USFS) or Weed and Pest Districts to identify areas of invasives and work to control them.		Describe the method of treatment and number of acres treated. Monitor and report treatment results.
	Work with PA to ensure suitable reclamation of weed treated areas for sage-grouse (e.g., seed mixes in sage-grouse habitat with appropriate shrub, forb, and grass components). Rest newly seeded/planted rangeland from livestock use. Consult agency specialist for amount of time to rest.		Describe actions to reclaim these areas.
	Use state-certified weed-free seed mixes and mulches.		Describe any weed-free seed mixes and mulches used.
	Work with PA specialists to address post-wildland fire issues.	Reduces impacts from wildfires or minimizes likelihood of wildfires	Describe management before and/or after wildland fire.
	Work with PA specialists to address and prevent wildland fire, especially if rangelands have a cheatgrass component. This is most relevant for areas adjacent to railroads, interstates, and in the Powder River Basin.		

Table 2 continued. Conservation Measures

THREAT	CONSERVATION MEASURES	CONSERVATION BENEFITS	COMPLIANCE MONITORING
Surface Water Developments/Disease			
Surface water developments such as ponds may increase mosquito habitat, resulting in increased sage-grouse mortality from disease (e.g., WNv). This is most relevant in northeast Wyoming, where WNv is prevalent.	Treat mosquito larvae present in ponds using Bacillus thuringiensis or appropriate chemicals.	Reduces potential for direct mortality and/or disease transmission	Describe if and when larvae were treated.
	Where new pond construction is proposed (e.g., for livestock or waterfowl), use innovative design for ponds (e.g., pipe water to trough offsite from a pond with steep sides to prevent establishment of aquatic vegetation); include wildlife escape ramp as needed.		Describe if and where new ponds were constructed, including pond design.
	Report to either WYGD or FWS within 24 hours any dead or sick sage-grouse found.		Describe when and where any dead or sick sage-grouse were found.
Sagebrush Management			
Sagebrush management (e.g., prescribed fire, chemical, mechanical) can result in a reduction of sage-grouse habitat quality and quantity.	Avoid eradicating sagebrush. Undertake no new conversion of rangeland to cropland.	Maintains or enhances sagebrush communities	Describe actions taken (or not taken) to avoid reducing sagebrush.
	Work with agency specialists to plan sagebrush treatments, avoiding areas currently providing sage-grouse habitat. Agency specialists will determine if sagebrush treatments are part of an appropriate landscape plan. After a plan is developed with agency specialists and if sagebrush treatment is warranted, utilize a mosaic pattern of treatment rather than a large uniform block. Avoid fire for sagebrush treatments in areas with less than 12 in annual precipitation. Work with agency specialists to develop prescribed fire management plans to address timing (e.g., spring burn versus fall), as well as the importance of treatment of the potential habitat to sage-grouse.		Describe sagebrush management.

Table 2 continued. Conservation Measures

THREAT	CONSERVATION MEASURES	CONSERVATION BENEFITS	COMPLIANCE MONITORING
Livestock Management and Rangeland Health			
Some grazing management practices alter shrub cover and/or grass and forb composition, reducing sage-grouse habitat quality and quantity.	Work with agency specialists to inventory vegetation and compare with the Ecological Site Description.	Maintains or enhances sage-grouse habitat, reproduction, and survival Minimizes potential for adverse impacts caused by grazing	Describe how a vegetative inventory was conducted.
	Within 12 months, work with PAs to develop and implement a written conservation management plan.		Provide the conservation management plan to the FWS.
	Within 24 months, develop and implement a written grazing management plan (a key component of any conservation management plan) to maintain or enhance the existing plant community as suitable sage-grouse habitat. This may be accomplished by site-specific modifications to grazing season of use, location, duration, frequency, number of animals, and/or types of livestock (see Cagney et al. 2010).		Provide the grazing management plan to the FWS.
Concentration of livestock caused by activities such as stock tank placement, branding, and roundup may impact vegetation and soil structure, resulting in a reduction of sage-grouse habitat quality and quantity. Intensity and duration of livestock present will affect the extent of impacts.	Avoid (or rotationally utilize) known nesting and brood-rearing habitat as a location for activities that concentrate livestock such as stock tank placement, branding, and roundup.	Maintains or enhances sage-grouse habitat, reproduction and survival Minimizes potential for adverse impacts caused by grazing	Describe how these habitat types were avoided.
	Place salt or mineral supplements in sites minimizing impacts to sage-grouse habitat.		Describe locations of salt or mineral supplements in relation to sage-grouse habitat.
	Avoid placing salt or supplements within 0.25-mile of riparian habitats.		Describe locations of salt or mineral supplements in relation to riparian habitat.
	If necessary, fence riparian habitat with markers (consult agency specialist), to protect habitat from trampling; or implement a grazing strategy.		Describe fencing of riparian habitats.

Table 2 continued. Conservation Measures

THREAT	CONSERVATION MEASURES	CONSERVATION BENEFITS	COMPLIANCE MONITORING
Woodland Encroachment			
Encroachment of woodland species (e.g., juniper, conifers, Russian olive, and salt cedar) into sage-grouse habitat can lead to a reduction in the amount of sage-grouse habitat, a reduction in its use, or abandonment.	Treat/remove undesirable woodland species encroaching into sage-grouse habitats. Work with agency specialists to determine if treatment is needed and an appropriate treatment method. Any treatment should include measures to control invasive species, particularly south-facing slopes which are conducive to cheat grass and thistle establishment.	Maintains important existing sagebrush communities	Describe any treatment in areas with encroachment and the number of acres treated.
Livestock Management in Important Sage-grouse Habitats			
Livestock, humans, and vehicles can physically disturb birds and cause them to leave leks or abandon nests (i.e., direct impact to nests and brooding hens), resulting in decreased reproductive success.	From March 1 through May 15, avoid new surface disturbing activities (e.g., roads, pipelines, corrals for branding) within 0.6-mile of the perimeter of occupied leks.	Reduces disruptions to lek and nesting activity , thereby reducing abandonment and predation risk	Describe any surface disturbing activities from March 1 – May 15.
	From March 1 through May 15, avoid disruptive activities between 6 p.m. and 8 a.m. within 0.6-mile of the perimeter of occupied leks.		Describe any disruptive activities from March 1 – May 15.
	From March 15 through June 30, avoid concentrating livestock in nesting habitat.		Describe if livestock were concentrated in potential nesting habitat from March 15 – June 30.
	From March 15 through June 30, avoid off-trail vehicular travel in nesting habitat, unless it is essential for routine ranch management (including but not limited to: repairing fence, "doctoring" livestock, finding lost livestock).		Describe if there was off-trail vehicular traffic from March 15 – June 30.
Design and Placement of Water Developments (including ponds and springs)			
Livestock watering tanks and troughs can cause sage-grouse mortality by entrapment and drowning.	Fit existing and new water troughs with escape ramps.	Reduces potential for direct mortality	Describe where and how many ramps were installed.

Table 2 continued. Conservation Measures.

THREAT	CONSERVATION MEASURES	CONSERVATION BENEFITS	COMPLIANCE MONITORING
Water diversions and spring developments can dry up meadow and riparian areas, reducing sage-grouse habitat quality and quantity.	Allow springs to be free-flowing (do not capture all of the water) at the point of diversion or source of the spring in order to maintain or enhance a wet riparian area. If necessary, fence riparian habitat with markers to protect habitat from trampling (consult agency specialist).	Maintains or enhances availability of nesting/early brood-rearing habitats	Describe if springs were developed and where habitat was protected.
Predation			
Some farm and ranch operations can increase opportunities for avian and mammalian predation of sage-grouse and their nests.	Avoid locating new garbage and dead piles closer than 0.6-mile from occupied leks, or within nesting or brood-rearing habitat. Relocate existing garbage and dead piles within 0.6-mile of occupied leks, nesting, or brood-rearing habitat. Limit access to leks, nesting, or brood-rearing habitat by domestic pets.	Reduces direct mortality to individuals and broods	Describe any measures taken to avoid predation.
	Install raptor perch deterrents on existing structures (e.g., power poles).		
Insecticide Use			
Application of insecticides can remove insects important to sage-grouse, reducing sage-grouse habitat quality.	Implement the Reduced Area & Application Treatment (RAAT) approach. Avoid carbaryl/malathion.	Maintains insects as a seasonally important food item	Describe any spraying that occurred on the property and if RAAT was implemented.
	Work with agency specialists to plan and design control efforts that avoid harming non-target species.		Describe your plan to avoid harm to non-target species and actions taken to implement plan.
Drought			
Prolonged drought can harm plants important to sage-grouse, reducing sage-grouse habitat quality and quantity.	Work with agency specialists to incorporate a drought management component into grazing plan, considering the needs of sage-grouse (e.g., stocking conservatively, destocking when necessary to reduce impacts on rangeland health, applying grazing regimes protective of sage-grouse habitats to the greatest extent practicable).	Maintains or reduces potential loss of sage-grouse habitat, reproduction, and/or survival	Describe if Animal Unit Months or season of use changed as a result of drought.
	Adjust livestock use (season of use, intensity, and/or duration) to reduce the impact on perennial herbaceous cover, plant species diversity, and plant vigor.		

Table 2 continued. Conservation Measures

THREAT	CONSERVATION MEASURES	CONSERVATION BENEFITS	COMPLIANCE MONITORING
Big Game Populations			
Concentrated or overabundant big game populations can harm plant communities important to sage-grouse, reducing habitat quality and quantity.	Utilize public hunting access opportunities to manage big game numbers and associated habitat conditions. Enroll properties in hunter management areas or walk-in area programs through WGFD's Private Lands Public Wildlife program. Cooperatively work with WGFD setting the big game season and/or objective.	Reduces impacts to sage-grouse habitats Maintains or enhances sage-grouse reproduction and survival	Describe if lands were opened to hunting.
	Cooperatively work with WGFD to implement habitat treatments to distribute big game.		Describe response of habitat to treatment.
Placement of Fences			
Sage-grouse can collide with fences resulting in serious injury or death.	Avoid construction of new fences within 0.6-mile of occupied leks or riparian areas where broods are known to concentrate. If fencing is needed for livestock management, mark fence.	Reduces mortalities from collisions	Describe the location of new fences.
	Consult with agency specialist to relocate, redesign (e.g., wood posts, buck and pole fences), or mark existing fences (e.g., wire markers) that occur within 0.6-mile of a lek, especially where previous collisions have been observed.		Describe if existing fences within 0.6-mile of occupied leks were relocated, redesigned or marked.

5.3 UNITED STATES FISH AND WILDLIFE SERVICE

The FWS agrees to provide the following assistance to aid landowners in selecting and implementing the appropriate CMs, subject to authorized and appropriated funds.

1. Serve as an advisor, providing expertise on the conservation of sage-grouse and providing information on FWS requirements regarding CCAAs.
2. Provide assistance in coordinating development and implementation of this CCAA. Assist in the development of mutually agreeable site-specific plans in cooperation with participating landowners and PAs.
3. Ensure the landowner is personally notified at least 48 hours in advance with a time, location, and names of all personnel entering an enrolled property.
4. Issue individual section 10(a)(1)(A) EOS permits, in accordance with 50 CFR 17.22(d) or 17.32(d), providing participating landowners authorization for limited incidental take of sage-grouse as a result of covered activities and provide regulatory assurances should the species be listed under the ESA. The term of the permit shall be included as part of the site-specific plans. Incidental take of sage-grouse as a result of any pesticide use would not be authorized under the permit.
5. Carry out any responsibilities for implementing conservation, monitoring, or other measures agreed to by the FWS under any site-specific plan or memorandum of agreement associated with this CCAA.
6. To the extent funding is available, provide FWS funding to support implementation of this CCAA and site-specific plans.
7. In those cases where terms of site-specific plans are not being met and efforts with the landowner to resolve compliance issues have not been effective, the FWS can suspend or revoke, in whole or in part, the section 10(a)(1)(A) EOS permit (see section 19).
8. Coordinate completion of all monitoring requirements set forth in this CCAA as well as site-specific plans developed pursuant to this agreement.
9. Coordinate completion of all reports pertinent to this CCAA and its implementation.

5.4 NATURAL RESOURCE CONSERVATION SERVICE AND CONSERVATION DISTRICTS

At the request of landowners and as resources allow, the NRCS and local Conservation Districts agree to provide the following technical assistance to landowners, FWS, and other PAs to assist in implementation of this CCAA.

1. Assist implementation of grazing management or conservation plans where they exist.
2. Develop grazing management or conservation plans where they do not exist.
3. Revise grazing management or conservation plans when needed.
4. Initiate or revise a range monitoring program.
5. Provide resource and ranch information to the FWS and other PAs.
6. Complete CCAA enrollment documentation, including any ranch and resource condition inventories or current and proposed grazing management plans. Select CMs compatible with the landowners' operations and the long-term goal of removing or reducing threats to the sage-grouse.

5.5 WYOMING DEPARTMENT OF AGRICULTURE

The WDA, at the request of landowners and as resources allow, agrees to provide the following technical assistance and support to landowners, FWS, and other PAs in activities related to applying for a CCAA or implementing the CMs.

1. Serve as an advisor to landowners as they work through the umbrella CCAA application process for their operation.
2. Provide training and assistance in rangeland monitoring protocols, or advise landowners on where to find assistance to fully implement this CCAA.
3. Participate in Sage-grouse Local Working Groups as requested, offering technical assistance and support.
4. Provide information and cooperate with landowners, and those assisting landowners, in the development of these plans.
5. Provide support and technical assistance through programs administered by the WDA, including the Coordinated Resource Management Program, Rangeland Health Assessment Program, Animal Damage Management (Rodent/Predator) Program, and Weed & Pest Program.
6. Provide mediation, facilitation, or other alternative dispute resolution processes.
7. Locate and apply for financial assistance to enable timely implementation of CMs.
8. Provide inventory, monitoring, survey, or other collected data to the FWS and/or other PAs.

5.6 WYOMING GAME AND FISH DEPARTMENT

The WGFD agrees to provide the following technical assistance to landowners, FWS, and other PAs in implementing the CMs.

1. Serve as an advisor, providing expertise on the management and conservation of sage-grouse.
2. Coordinate and participate in the statewide lek monitoring program (e.g., rangeland monitoring protocols, conducting lek counts in accordance with established WGFD protocols) to implement this CCAA and assure the consistency and quality of site-specific plans.
3. Ensure management of wildlife is compatible with the needs of sage-grouse to the greatest extent practicable.
4. Continue as an active participant in Sage-grouse Local Working Groups, offering technical assistance and support. Collaborate with the local working groups to identify the individual CMs in this CCAA that can best be implemented through efforts at the local level and maintain a schedule for completing those actions.
5. Provide information and cooperate with landowners, and those assisting landowners, in the development of individual site-specific plans.
6. In cooperation with the WGO, seek funding to implement this CCAA.
7. Provide inventory, monitoring, survey, or other collected data to the FWS and/or other PAs.

5.7 BUREAU OF LAND MANAGEMENT

The BLM agrees to provide the following technical assistance to aid landowners in implementing the CMs for the BLM CCA.

1. Work with landowners (i.e., Federal grazing permit holders) and other agencies (e.g., agriculture extension agents) to facilitate appropriate rangeland monitoring and/or training.
2. Implement a companion CCA (see section 24).

5.8 UNITED STATES FOREST SERVICE

The USFS agrees to provide the following technical assistance to aid landowners in implementing the CMs.

1. Work with landowners (i.e., Federal grazing permit holders) and other agencies (e.g., agriculture extension agents) to facilitate appropriate rangeland monitoring and/or training.
2. Implement a companion CCA where appropriate (see section 24).

6. LEVEL/TYPE OF TAKE/IMPACTS

Current regulations authorize the issuance of permits for otherwise prohibited activities (e.g., take, import, export, interstate and foreign commerce) in order to enhance the propagation or survival of a listed species. For CCAAs, the respective policy (64 FR 32726) and regulations (50 CFR 17.22(c) and 17.32(c)) provide for the associated EOS permits under section 10(a)(1)(A) to authorize incidental take.

The FWS identified habitat loss and fragmentation as the primary causes of sage-grouse declines (75 FR 13910; March 23, 2010). The protection of existing sage-grouse habitat as well as the restoration of degraded habitat is crucial to the continued existence of the species in Wyoming. The CMs identified in this CCAA are expected to maintain and enhance habitat on enrolled lands and limit adverse impacts to sage-grouse. Several CMs address potential sources of mortality, injury, and other forms of take through loss or degradation of habitat. Therefore, minimal incidental take as a result of proper implementation of the CMs and normal ranching operations maintaining healthy sagebrush ecosystems is expected. We expect the majority of incidental take will be in the form of harassment or death during haying and mowing, strikes on fences and other ranch infrastructure, and fragmentation of intact sagebrush landscapes.

The precise number of sage-grouse that will be taken in Wyoming cannot be determined. Little information is available regarding incidental mortalities of sage-grouse from ranching operations. However, Christiansen (2009) and Stevens (2011) discuss rates of fence collisions for sage-grouse at specific locales. Christiansen (2010) also discusses sustainable levels of take from hunting.

Stevens (2011) determined that at four sites in Idaho sage-grouse collisions with fences during the breeding season were negatively influenced by increasing topographical relief, but had a positive relationship with increasing fence length and density, increasing lek size, and decreasing distance from a fence to a lek. The author found differences in collision rates between study areas, suggesting landscape features also influence collision rates. Collisions rates varied from 0.10-0.75 strikes per km (0.16-1.21 strikes per mi) of fence.

In a Wyoming study, Christiansen (2009) reported increasing topographical relief resulted in fewer collisions, presumably because sage-grouse were flying at greater elevations simply to avoid topographical features. The author also noted increased collision rates were associated with fences constructed with steel t-posts, fences near leks and riparian areas, and fences bisecting winter concentration areas. This study documented 146 sage-grouse strikes along 7.6 km (4.7 mi) of fence.

While fences can be deleterious to sage-grouse populations and habitats, they also can improve habitat conditions (e.g., by protecting riparian areas providing brood-rearing areas from overgrazing) (Stevens et al. 2012): fences, generally, are not considered to be significant threats to sage-grouse. Sage-grouse mortality from fences is due to "problem fences" that take a disproportionate number of birds due to problematic placement in localized areas, such as those placed close to active leks within gently rolling terrain. Assessments of the impact or benefit of fences must be made considering local ecological conditions and the movement of sage-grouse within local areas (Stevens et al. 2012).

Both authors found marking fences to increase visibility significantly reduced collisions. Population sizes were not provided; therefore, we cannot estimate the impact of these collisions on population persistence. Both authors also noted not all fences within the range of sage-grouse were problematic. Given the diversity of variables measured in this research (fence length, fence construction, proximity to lek, proximity to riparian areas, lek size, seasonal habitat use, and topographical variation), it is not possible to calculate the number of sage-grouse taken in Wyoming as a result of collision with fences. However, we anticipate fence collisions will be minimized on enrolled lands through the implementation of CMs specifically designed to reduce collision rates.

The only quantifiable estimates of take relative to total population mortality pertain to hunting. Connelly et al. (2000) suggested no more than 10 percent of the fall sage-grouse population be removed through harvest. Sedinger et al. (2010) detected no negative correlation between annual survival and harvest when harvest rates were less than 11 percent of the fall population. However, States do not presently measure fall population size of sage-grouse, and no recognized protocol has been established to do so (Reese and Connelly 2011). To compensate for a lack of site-specific information and contradictory study results, Reese and Bowyer (2007) suggested wildlife managers propose a harvest of five percent of the spring breeding population estimate.

The WGFD estimates less than five percent of the sage-grouse population is taken annually by hunters in Wyoming (Christiansen 2010). Incidental take from ranching activities and implementation of the CMs identified in this CCAA will likely be less than take from hunting

due to the beneficial nature of the CMs. Therefore, combined take from both hunting and ranching activities should be within the 10 percent recommendation made by Connelly et al. (2000) and Sedinger et al. (2010). A sustainable population level of sage-grouse should be maintained throughout the State at this level of take. Incidental take from these activities will likely be reduced even further following successful implementation of the CMs associated with this CCAA.

We cannot predict the number of landowners and acreage that will enroll in this program. Consequently, we cannot quantify the actual take that may result from implementation of this umbrella CCAA. However, we developed a simple estimator using a statewide estimate of sage-grouse abundance, the total area of sagebrush statewide, the number of acres enrolled by an individual landowner, and an allowable take of 5 percent from ranching activities. We assumed approximately 208,000 sage-grouse are in Wyoming (FWS 2010). We also assumed that the total area of sagebrush habitats within the State is approximately 17,500,000 ha (43,000,000 ac) (FWS unpublished GIS data). This equals a statewide average density of approximately 0.01 birds per ha (0.005 birds per acre) of sagebrush. The number of acres enrolled by a landowner multiplied by the statewide average density of sage-grouse provides an estimate of the number of birds on the enrolled property. The number of birds on the property multiplied by an allowable take of 5 percent determines the annual allowable incidental take for the enrolled property. For example, if a landowner enrolls 1,000 ac, he will have an annual allowable incidental take of 0.25 birds (1000 ac x 0.005 birds per acre x 0.05 allowable take = 0.25 birds). Therefore, over the 20 year duration of the individual CCAA, an allowable incidental take of 5 birds would be authorized in the landowner's section (10)(a)(1)(A) EOS permit. If adequate data are available on a localized scale in which a particular ranch is located, and the average number of birds differs substantially from the statewide average, the amount of allowable incidental take would be adjusted accordingly.

If new information suggests that allowable incidental take is inadequate for a particular enrolled property, FWS will work cooperatively with the landowner to adjust take to an appropriate level as long as FWS determines that additional take is not detrimental to the long-term conservation of the sage-grouse. Additionally, if total allowable take for a given enrolled property is exceeded, if the landowner takes necessary actions to eliminate the cause of take, FWS will work cooperatively with the landowner to continue implementation of the CCAA.

We recognize that this formula for incidental take does not consider variations in habitat quality or hunting intensity between enrolled properties. However, we believe that this is a reasonable approach given the complexities of annually assessing each enrolled property to determine the number of sage-grouse present. We also recognize that annual allowable take may be less than one bird, depending on the number of acres enrolled. However, if take is assessed over multiple years, we gain a degree of flexibility in determining take.

Adverse impacts not rising to the level of take

Disturbance of some individual sage-grouse may occasionally occur from feeding, calving, and herding of livestock, or from recreational activities (e.g., horseback riding, ATV riding, and legal

hunting of other species). These effects are expected to occur only rarely and will likely result in birds being flushed a short distance. This will not likely adversely affect the fitness of these birds.

How take may affect the sage-grouse

Incidental take of sage-grouse related to ranch operations is often related to fragmentation of habitat. Several CMs address fragmentation, including the CM regarding maintenance of contiguous habitat required of all enrolled landowners. Occasional sage-grouse mortality may also occur from fence strikes, and CMs have been designed to limit the risk of these losses. Mortality from fence strikes is anticipated to occur very infrequently with the implementation of these CMs.

In conclusion, the small level of incidental take estimated from ranching activities will be reduced by the successful implementation of the CMs. The umbrella CCAA (including participation of individual CCAAs) will aid conservation of sage-grouse and their habitat in Wyoming, as further described in the following section.

7. EXPECTED BENEFITS

The FWS must determine that the CMs to address threats associated with those types of actions described within this umbrella CCAA and resultant conservation benefits, combined with benefits achieved if similar CMs were implemented on all similar properties throughout the range of the sage-grouse, would remove the need to list the species due to these threats on those properties. The CMs identified in this CCAA are expected to benefit sage-grouse through maintenance, enhancement, and restoration of sage-grouse populations and their habitats and by reducing threats causing direct mortality. Since non-Federal landowners control substantial acreage of important habitat for sage-grouse, encouraging implementation of CMs by enrolled landowners throughout Wyoming will improve conservation of this species statewide. This is an opportunity to make large-scale improvements on over 7 million ha (17 million ac) of privately owned lands, with the potential result of larger and more widely distributed populations of sage-grouse throughout Wyoming. As required by the CCAA standard, if this CCAA were implemented on all potential properties the FWS believes the need to list sage-grouse due to threats addressed within this umbrella CCAA for the area in which covers would be precluded. The expected conservation benefits in relation to threats known or potentially occurring in Wyoming are described in the following paragraphs.

Regulatory assurances conferred to enrollees will provide an incentive for more landowners to maintain their ranch operations and lessen the likelihood these lands will be sold and divided for exurban development. The curtailment of the development threat would benefit sage-grouse populations by maintaining habitat quantity and quality and limiting habitat fragmentation, which has been identified as the most significant threat to the species. The assurances conferred under the CCAA program by section 10(a)(1)(A) EOS permits encourage potential participating landowners to select CMs to remove or reduce threats on enrolled lands. Such decisions are

crucial to the success of this umbrella CCAA, but can only be carried out through the actions of individual landowners with individual CCAAs. The umbrella CCAA provides further incentives for landowner participation through a streamlined enrollment process. Although enrollees will need to sign individual CCAAs, the umbrella CCAA simplifies the process for developing site-specific plans by providing the suite of appropriate CMs for each threat that may occur on the property. With anticipated increased enrollment as a result of these incentives, benefits to the species are expected at a landscape scale.

From a rancher's perspective, options to change vegetative conditions primarily concern the management of herds – specifically where and when they graze, for how long, and in what numbers (Cagney et al. 2010). These decisions, coupled with fences, herding techniques, salt and mineral placement, seasons of use, water development, and type of livestock, constitute the majority of ranch management options. CMs related to livestock management take two forms. The first is avoidance and minimization of direct physical threats. In many cases, maintenance of currently suitable habitat meets the needs of sage-grouse. However, in some cases, livestock grazing can displace birds. Methods to avoid or minimize impacts include not concentrating livestock in known breeding or brood-rearing habitat or near known leks during the times these areas are in use by the sage-grouse. The second form of livestock management addresses unfavorable modifications to habitat, particularly breeding and brood-rearing habitats. Some of these impacts are easily identified. For example, spring grazing can reduce grass and forb heights. An appropriate CM is to remove livestock from specific areas during the spring to protect adequate nesting cover. More subtle changes in species composition, grass/forb mixture, and shrub cover may also modify habitat and can only be determined by establishing long-term trend monitoring for each pasture (described in section 12). Alternative CMs addressing changes in timing, intensity, or duration may be needed if the vegetative trend moves away from desired conditions.

Fencing is an effective method to control livestock use of pastures and facilitate herd use over the landscape, thereby avoiding localized impacts to habitat. However, fencing can also degrade and fragment habitat, particularly if roads are maintained next to the fence. Fences can provide a pathway for predators, introduce weeds, and contribute to increased bird-fence collision risks. CMs designed to reduce or remove these threats include habitat assessments to avoid constructing fences (and other infrastructure) in important habitats, removal of fences (or portions of the fence) where confirmed collisions are a threat, use of "lay down" or electric fence, and markers to improve the visibility of fences.

Extended periods of drought can harm habitats important to sage-grouse. While ranching operations cannot influence precipitation, they can help maintain or reduce potential loss of sage-grouse habitat and ultimately increase the survival rates of sage-grouse by implementing drought management plans. For example, adjusting livestock use (season of use, intensity, and/or duration) can reduce adverse impacts on perennial herbaceous cover, plant species diversity, and plant vigor, as well as increase soil moisture by increasing plant litter. Working with agency specialists may identify other options (e.g., grass or "forage" reserves) available to assist in further reducing impacts during dry conditions.

CMs for fire include working with PA specialists on strategies to prevent or suppress wildland fires, particularly those in important sage-grouse habitat, as well as participation in restoration activities post-burn (e.g., native seeding/planting, temporarily removing or reducing livestock use). Fire suppression in breeding and winter habitats is probably among the most beneficial CMs regarding fire. If important sagebrush stands are burned, sage-grouse use can be adversely affected for 20 years or more, reducing habitat quality and quantity. Therefore, it is important to develop plans to reduce the threat of fire where possible and aggressively fight fire when outbreaks occur in important sagebrush habitat. Proactive planning addresses wildland fire outbreaks and reduces the possibility of establishing unsuitable plant communities (e.g., monocultures of non-natives, introductions of exotics). Sagebrush restoration following a fire is complicated by the presence of invasive exotic annual plant species, restoration costs, availability of suitable seeds, and the difficulty of establishing sagebrush seedlings. The efficacy of these efforts and the utility of these sites for sage-grouse in the future may not be realized for several decades. Range monitoring, especially in burned areas, is expected to provide more information on sage-grouse use (or avoidance) of these areas, which may lead to better management prescriptions in the future.

The most effective CMs to reduce or remove threats associated with annual grass invasions are the prevention and suppression of wildland fire, particularly in important sagebrush habitats. This also imparts the benefits of maintaining existing shrub cover and preventing incursions of annual grasses. Secondary CMs include livestock management practices leaving residual cover, eradication of known populations of invasives, and immediate restoration of disturbed sites (e.g., borrow ditches along roads).

Encroachment of woodland species (e.g., junipers, conifers, Russian olive, salt cedar) into sage-grouse habitat can lead to a reduction of sage-grouse use, or complete abandonment of these habitats. If this threat is present, enrolled landowners should remove woodland species, which will increase available sage-grouse habitat or restore previously occupied habitat.

Concentrated and/or overabundant big game populations can harm plant communities important to sage-grouse, reducing both habitat quality and quantity. CMs for this potential threat include working with WGFD to allow public hunting access to reduce or re-distribute wildlife and working with PAs to develop habitat treatments that better distribute wildlife use of an area. This will minimize localized impacts from overgrazing by big game, thereby maintaining optimal habitat conditions for sage-grouse.

CMs to remove or reduce mosquito habitat limit the threat to sage-grouse from WNv. For example, constructing ponds with steep slopes and limited vegetation may reduce the habitat for mosquito vectors carrying WNv. Treating ponds with mosquito larvicides in areas known to be high in mosquito vectors (e.g., Powder River Basin) will also reduce the threat of WNv. Reporting dead and dying sage-grouse to WGFD or FWS could result in earlier treatment and thereby help avert a larger outbreak.

CMs including removing dead piles, controlling domestic pets, and installing raptor perch deterrents in important sage-grouse habitat can directly address the impacts of human-caused

increases in local predators. CMs addressing the threat of habitat loss and fragmentation will also reduce the threat of predation. For example, maintaining adequate hiding cover, especially in nesting and brood-rearing areas, will decrease occurrence of predation.

Development restrictions within sage-grouse core management areas designated by the State of Wyoming will limit new development in those areas. The core strategy effort, in conjunction with this umbrella CCAA will conserve sage-grouse by formally providing protections and CMs on private lands within the core areas. Lands outside the core area remain important; however, the benefits to habitat within core areas are magnified when included in the CCAA strategy. The State also requires that oil and gas operators attempt good faith negotiation to develop an SUA before mineral rights can be developed on lands with severed surface and mineral ownership. If a landowner(s) develops a SUA, they may seek to condition the SUA based on the objectives and CMs in the individual CCAA. The CMs would continue to apply to those lands. However, incidental take assurances will not apply to take resulting from mineral development activities: incidental take associated with activities and associated threats other than ranch management and livestock grazing must be addressed in a separate CCAA developed specifically to address those threats.

CMs to reduce potential impacts from the application of pesticides include: (1) evaluation of the pest threat (i.e., do not spray if there is no problem); (2) implementation of a RAAT to control grasshoppers, which focuses control efforts along strips to avoid spraying entire fields, and avoids the pesticides carbaryl and malathion; and (3) working with agency specialists to plan and design control efforts to avoid harming non-target species. These CMs minimize or eliminate potential exposure to pesticides directly harmful to sage-grouse or indirectly impacting sage-grouse through the loss of invertebrates that are a component of the species' diet.

Upon completion of this umbrella CCAA, it will be used as a template to draft CCAs for lands managed by BLM and USFS as deemed appropriate by agency leadership. The CCAs will present CMs similar to those in the individual CCAAs being implemented by private landowners who also hold grazing permits on respective Federal lands. Consequently, the CCAs will "dovetail" with individual CCAAs, providing benefits to sage-grouse on Federal lands leased by private landholders similar to the benefits derived on private lands. The CCA efforts will enhance the comprehensive landscape approach to greater sage-grouse conservation for grazing and associated activities.

8. ASSURANCES PROVIDED

The FWS provides assurances through individual CCAAs with non-Federal property owners and the associated section 10(a)(1)(A) EOS permits. If the sage-grouse is listed, no additional CMs or land, water, or resource use restrictions, beyond those voluntarily agreed to and described in Section 5, will be required as long as the enrolled landowner is in full compliance with the individual CCAA and section 10(a)(1)(A) permit. These assurances will be authorized with the issuance of EOS permits under section 10(a)(1)(A) of the ESA. If all permit issuance criteria are

met in accordance with 50 CFR §§ 17.22(d)(2) and 17.32(d)(2), the FWS would issue permits to authorize incidental take associated with the following covered activities.

1. *General farm operation*: Cultivation of fields (planting, cultivation, and harvesting small grain, seed, and/or hay crops); irrigation by flooding or sprinklers; weed control within fields; and maintenance of houses, outbuildings, fences, and corrals.

2. *General ranching operations*: Grazing of forage, feeding hay and dietary supplements in feedlots and pastures, calving and branding operations (including temporary penning of animals), disposal of dead animals, construction and placement of watering sources, gathering and shipping livestock, general stewardship, and animal husbandry practices.

3. *Recreation*: These same lands provide numerous recreational benefits for family members and guests, some of whom pay for recreational services by leasing hunting rights or through other mechanisms. For the purposes of this CCAA, the following land use, management, and recreational activities are defined as "covered activities," although they may be further refined in individual site-specific plans: legal hunting and fishing, use of recreational vehicles both on and off established roads, horseback riding, camping, and hiking.

Take resulting from mineral development activities will not be authorized under individual CCAAs or section 10(a)(1)(A) permits.

9. ASSURANCES PROVIDED TO ENROLLED LANDOWNER IN CASE OF CHANGED OR UNFORESEEN CIRCUMSTANCES

The assurances listed below apply to enrolled landowners with an EOS permit associated with this CCAA, where the CCAA is being properly implemented. The assurances apply only with respect to sage-grouse and only to ranch management activities.

Changed circumstances provided for in the CCAA

If additional CMs are necessary to respond to changed circumstances and were identified in this umbrella CCAA, the FWS and other PAs will work with enrolled landowners in selection of appropriate, and mutually agreed upon, CMs. If circumstances occur eliminating a substantial amount of sage-grouse habitat on properties covered by this CCAA to the extent meeting suitable habitat conditions is not possible within the CCAA time frame, PAs will meet and evaluate CMs and identify potential actions to address the changed circumstances. The FWS will work with the enrolled landowner(s) to re-evaluate the existing CMs to be implemented in order to develop a mutually agreed upon schedule. Adaptive management approaches will be applied to make adjustments to maximize the likelihood of success. Potential factors resulting in changed circumstances include drought, fire, disease (WNv), and development. These factors are described below.

Drought: Variation in precipitation is common throughout the sage-grouse range. Annual rangeland monitoring and CMs on enrolled lands are expected to address minor year to year variations in precipitation. However, prolonged droughts in important grouse habitats may create conditions reducing seasonally available habitat beyond normal annual variation and causing changed circumstances on the landscape such as vegetative die-off or poor production of invertebrates. In the event of drought, the FWS will meet with other PAs and evaluate the drought conditions. If appropriate, CMs specific to situations of prolonged drought will be utilized to address local conditions. The FWS will work with enrolled landowners to determine if current livestock grazing practices should be temporarily modified. CMs enrolled landowners may use to address drought conditions include, but are not limited to: (1) grazing rest, deferment, rotation, or other management changes designed to retain residual and live vegetation; (2) development of grass banks for use during drought conditions; (3) development of additional water sources for livestock and sage-grouse; and (4) other vegetation management to minimize additive impacts. Any changes or additions to CMs will be mutually agreed upon by enrolled landowners and FWS.

Fire: There is a potential for catastrophic fire throughout the sage-grouse range, particularly during periods of drought. Fire can eliminate sagebrush habitat and increase the likelihood of invasive, noxious plants. In the event of catastrophic fire, the FWS will meet with other PAs and evaluate the impact of the fire. The FWS will work with enrolled landowners to determine if additional CMs are needed. CMs enrolled landowners may use to address impacts from fire include, but are not limited to: (1) implementation of restoration projects; (2) rest from livestock use; (3) removal of invasive plants; and (4) working with PA specialists to address issues. Any changes or additions to CMs will be mutually agreed upon by enrolled landowners and FWS.

Disease (WNv): WNv has recently spread into Wyoming, particularly the northeastern corner of the State. There is the potential for a large-scale outbreak among sage-grouse, which are susceptible to the disease and suffer a high rate of mortality when infected. In the event of a disease outbreak, the FWS will meet with other PAs and evaluate the impact from the outbreak. The FWS will then meet with enrolled landowners to determine if additional CMs are needed. CMs enrolled landowners may use to address impacts from WNv include, but are not limited to: (1) chemical treatment of mosquito larvae present in ponds; (2) design ponds to prevent establishment of aquatic vegetation and minimize mosquito habitat; and (3) notify WGFD or FWS of dead or sick sage-grouse. Any changes or additions to CMs will be mutually agreed upon by enrolled landowners and FWS.

Development: There is the possibility of development unrelated to ranching. In particular, renewable and non-renewable energy development may occur throughout much of the sage-grouse range in Wyoming, especially on lands where subsurface mineral rights are severed from the enrolled landowner's surface rights. Impacts can include both direct loss of habitat and habitat fragmentation by roads, pipelines, power lines, wind turbines, and other infrastructure. Accompanying noise disturbance can also reduce lek attendance and nesting success. In the event of energy development on lands enrolled under this umbrella CCAA, the FWS and other PAs will evaluate the compatibility of the development with the goals of the individual CCAA. The FWS will work with enrolled landowners to determine if additional CMs are needed. CMs

that enrolled landowners may use to address impacts from energy development include, but are not limited to: (1) avoid building new infrastructure within 0.6 mi of occupied leks; (2) avoid eradicating sagebrush; and (3) craft a Surface Use Agreement and development plan in cooperation with the operator to minimize surface disturbing activities. The FWS acknowledges, however, that the ability of enrolled landowners to direct or control development of energy on split-estate properties is limited by the willingness of developers to work with them voluntarily in terms of avoidance and minimization of potential impacts to sage-grouse and habitat. The FWS will work with the enrolled landowner and the operator, to the extent possible, to arrive at CMs agreeable to all parties. Any changes or additions to CMs will be mutually agreed upon by enrolled landowners and FWS.

Changed circumstances not provided for in the CCAA

If additional CMs are necessary to respond to changed circumstances and such measures were not provided for in the umbrella CCAA, the FWS will not require any conservation and mitigation measures in addition to those provided for in the individual CCAA without the consent of the enrolled landowner(s), provided the CCAA is being implemented as agreed.

Unforeseen circumstances

If additional CMs are necessary to respond to unforeseen circumstances, the FWS work with the enrolled landowner to determine applicability of implementing additional CMs, but only if such measures are limited to modifications addressed within this umbrella CCAA, and only if those measures maintain the original terms of the individual CCAA to the maximum extent possible. Additional CMs will not require the commitment of additional land resources, water resources, financial compensation, or additional restrictions on the use of land, water, or other natural resources, beyond the level otherwise agreed upon, without the consent of the enrolled landowner(s). The FWS will have the burden of demonstrating unforeseen circumstances exist, using the best scientific and commercial data available. These findings must be clearly documented and based upon reliable technical information regarding the status and habitat requirements of the sage-grouse. The FWS will consider, but not be limited to, the following factors:

(1) Size of the current range of the sage-grouse;
(2) Percentage of range adversely affected by the CCAA;
(3) Percentage of range conserved by the CCAA;
(4) Ecological significance of the portion of the range affected by the CCAA;
(5) Level of knowledge about the sage-grouse and the degree of specificity of the species' conservation program under the CCAA; and
(6) Whether failure to adopt additional CMs would appreciably reduce the likelihood of survival and recovery of sage-grouse in the wild.

10. MONITORING PROVISIONS

Enrolled landowners and PAs will conduct monitoring in accordance with individual CCAAs. There are several components of the monitoring program:

(1) Compliance monitoring, which will include:
   a. Annual self-reporting by the enrolled landowner, and
   b. Compliance evaluations conducted by the FWS and PAs; and

(2) Biological monitoring, which will include:
   a. Baseline assessment by enrolled landowners or designees,
   b. Periodic but intensive sage-grouse habitat monitoring conducted by a team established by the PAs, and
   c. Annual sage-grouse lek monitoring conducted by the WGFD and enrolled landowners trained in lek monitoring protocols.

After reasonable prior notice to the enrolled landowner, the FWS or other PAs may enter the enrolled lands to ascertain compliance with the CCAA or to conduct biological monitoring. Reasonable prior notice is notice given at least two weeks in advance of a visit. Landowners will also be notified at least 48 hours in advance with a specific time, location, and names of all personnel entering the property for monitoring purposes.

The results of monitoring efforts outlined below and more specifically addressed in Appendices C and D will be considered from an adaptive management perspective. Many of the potential CMs have been successfully implemented as part of other conservation efforts. However, outcomes of a few CMs may vary based upon local site conditions. Specifically, CMs with a vegetation restoration component may have varying success based upon local soil type and climatic conditions such as rainfall timing and amount. For these CMs, careful monitoring both before and after implementation, along with the flexibility provided through adaptive management, will maximize the likelihood of success through possible changes to seed mixtures, rescheduling of reclamation efforts, timing of treatments, and other adjustments.

An adaptive, outcome-based approach (Walters 1986) will be used to allow management flexibility, recognizing CMs may need to be updated based on changing conditions or new information. Such an adaptive approach explicitly recognizes multiple factors (environmental conditions, biological processes) affect sage-grouse populations. Furthermore, the consequences of prescriptive CMs cannot be predicted with certainty. Therefore, the CCAA provides a framework for making objective decisions in the face of uncertainty. If the expected results of a CM are not achieved, the CM is either modified or an alternative CM is undertaken in order to achieve the expected results. Adaptive management relies on an iterative cycle of monitoring, assessment, and decision making to clarify the relationships among the CMs and the response of habitat and, ultimately, sage-grouse abundance.

11. COMPLIANCE MONITORING

The enrolled landowner is responsible for annual compliance monitoring and annual reporting specified herein related to implementation of the individual CCAA and fulfillment of its provisions, including implementation of agreed-upon CMs (see Appendices C and D for reporting recommendations) and take authorized by the permit. Compliance monitoring will require information on which CMs were implemented, when and where the CMs were implemented, and whether any take occurred (see Table 2 for specific requirements).

12. BIOLOGICAL MONITORING

Ranch management and grazing practices currently employed by landowners likely result in one of two conditions: (1) properties contain suitable habitat currently being maintained; or (2) properties contain potentially suitable habitat not currently being maintained, but for which there exists substantial opportunity to restore, improve, and enhance habitat through the implementation of CMs included in this CCAA.

The landowner will conduct a scaled approach to monitoring based on the quality and type of habitat existing on the enrolled property at the time of application. PA biologists will be identified on a site-by-site basis to assist the landowner with monitoring as appropriate. PA biologists will determine the level of monitoring applied to each property. The first and simplest level of monitoring applies to those properties containing suitable habitat for sage-grouse currently maintained by existing grazing or ranch management practices. This level of monitoring will consist of verifying, through annual reporting to FWS, the continued implementation of agreed-upon CMs. Alternatively, on those properties for which a grazing management plan has been developed by NRCS, monitoring would consist of reporting on compliance with the plan.

The second, more rigorous, level of monitoring will apply to properties with potentially suitable sage-grouse habitat, for which there is substantial opportunity to improve habitat through the implementation of CMs. There are three main seasonal habitats important to sage-grouse: (1) nesting and early brood-rearing, (2) late brood-rearing, and (3) fall and winter (Connelly et al. 2000). Consequently, the biological monitoring protocols will focus on annual evaluations of these habitat types where CMs are being implemented for each enrolled property. PA biologists will confirm the presence of each habitat type on each enrolled property, and assist each landowner in establishing appropriate transect locations, number of transects per habitat type, and proper time of year to perform the surveys. The landowner and assisting PAs will collect information appropriate to the seasonal habitat types found on the property using the procedures outlined in Tables 3-5 below. Recognizing site-to-site variability in rangeland production and sage-grouse habitat condition associated with precipitation patterns, PA biologists will work with landowners to define deviations from Minimum Productive Site Characteristics identified below.

Table 3. Suitable nesting and early brood-rearing habitat characteristics

Habitat Feature	Habitat Use	Minimum Productive Site Characteristics	Example of technique to measure metric
Sagebrush canopy cover	Nesting Cover	15 percent	Continuous line intercept
Sagebrush height	Nesting Cover	12 in	Robel Pole
Sagebrush growth form	Nesting Cover	Spreading form with few dead branches	Visual Observation/Photo
Perennial grass and forb height	Nesting Cover	>7 in	Robel Pole
Perennial grass and forb cover	Nesting Cover and food	>15 percent	Line-point intercept
Total Forb Cover	Food	>9 percent	Daubenmire plot/sample point method

Table 4. Suitable late brood-rearing habitat characteristics

Habitat Feature	Habitat Use	Minimum Productive Site Characteristics	Example of technique to measure metric
Sagebrush canopy cover	Cover	10 percent	Continuous line intercept
Sagebrush height	Cover	15 in	Robel Pole
Proximity of sagebrush cover	Cover	Sagebrush cover is adjacent(<100 yards) to brood-rearing area(s)	Measuring tape
Perennial grass and forb canopy cover	Cover and food	>15 percent	Line-point intercept
Riparian and wet meadow plant community	Food	Wetland plant species dominate wet meadow or riparian area	Daubenmire plot/sample point
Riparian and wet meadow stability	Cover and food	Some bare ground maybe evident but vegetative cover dominates the site	Daubenmire plot/sample point method
Forb availability in uplands and wetland areas	Food	Succulent forbs are readily available in terms of distribution and plant structure	Daubenmire plot/sample point method

Table 5. Suitable fall and winter habitat characteristics

Habitat Feature	Habitat Use	Minimum Productive Site Characteristics	Example of technique to measure metric
Sagebrush canopy cover	Cover and food	10 percent	Continuous line intercept
Sagebrush height	Cover and food	10 inches above snow level	Robel Pole

Enrolled landowner biological monitoring includes:

1. Evaluation by each enrolled landowner or their designee of the effects of implemented CMs on local seasonal habitat condition and may include monitoring vegetation heights, canopy cover, production, and species diversity (see Tables 3-5).
2. Monitor rangelands for noxious, invasive weeds, especially on areas of disturbed soils, to enable early detection and control of undesirable species, before they become established. There is no set protocol, but there is a reporting requirement that surveys be documented (e.g., date, length of survey route, location of survey route) and reported annually.
3. Record dates, locations, and numbers of sage-grouse observed on their property and include information in the annual report. The FWS will provide a report form.
4. Report all observed mortalities of sage-grouse to the FWS within five days.
5. Annually compile and provide information from these monitoring efforts to FWS by January 31. FWS will distribute copies of reports to all PAs.

PAs biological monitoring includes:

6. Assess sage-grouse habitat conditions on 10 percent of randomly selected enrolled properties at least once every five years. Since sagebrush takes years to respond to changes in management, changes in vegetative composition will be captured within this timeframe. This assessment will describe occupied seasonal habitat and potential seasonal habitat, seasonal habitat availability, and anthropogenic features within and between seasonal habitats for each enrolled property.
7. Annually assess Quality Assurance/Quality Control by randomly selecting 10 percent of the enrolled properties and completing a local seasonal habitat condition evaluation. The results of this evaluation/survey will be compared with landowner evaluation for Quality Assurance/Quality Control of the survey methods/protocols.
8. PAs and enrolled landowners trained in lek data collection protocols will conduct annual monitoring of sage-grouse leks. Monitoring will follow protocols established by the WGFD. Reports are due annually to FWS on January 31. FWS will distribute copies of reports to all PAs.
9. PAs will conduct surveys to evaluate individual CM effectiveness (e.g., how well do fence markers actually work in reducing fence strikes?).